FLYING

How to Land in Strange Fields
PAGE 38

Airmen's Ranch
PAGE 15

THE SHAPE OF WINGS TO COME?
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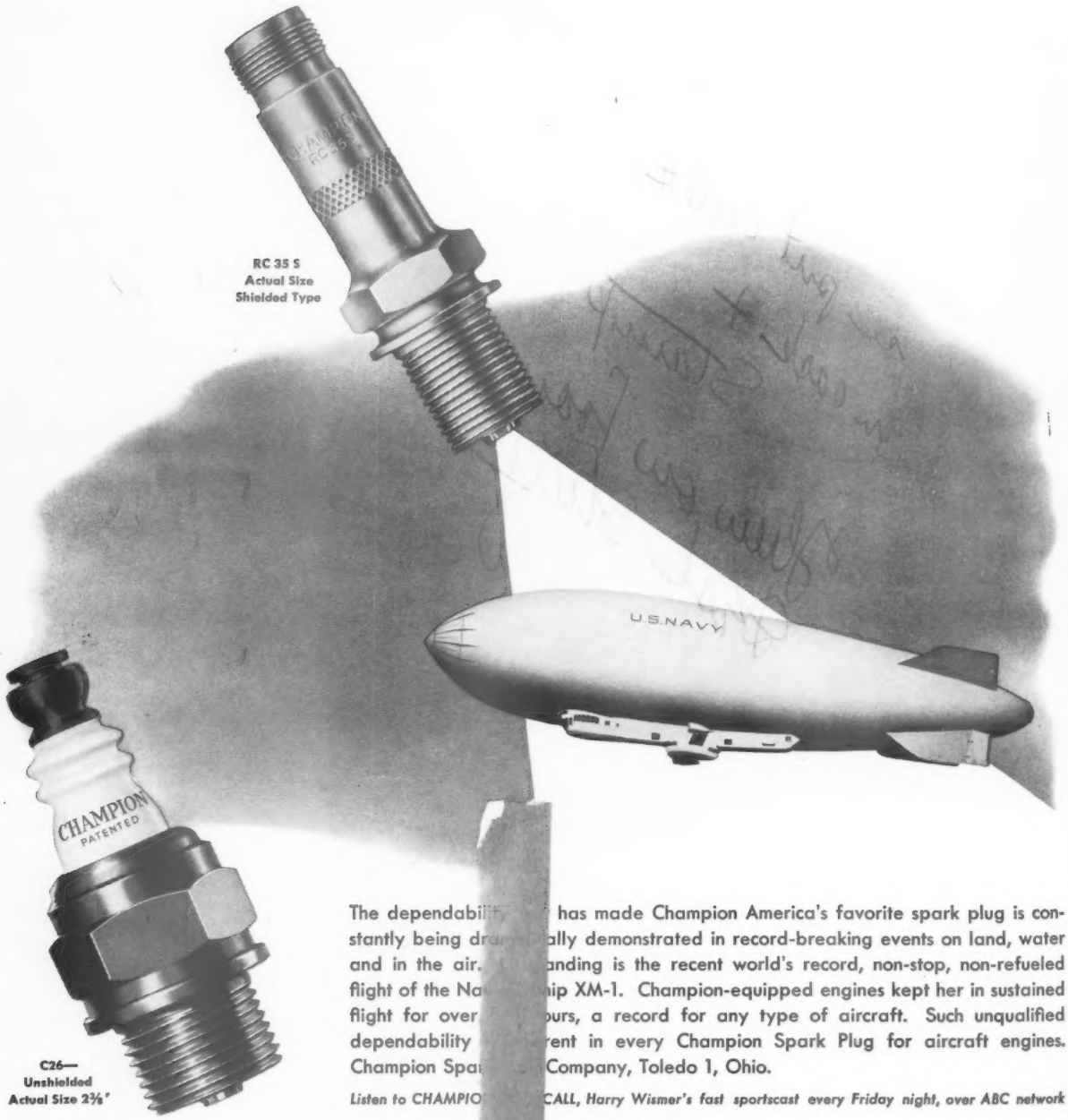

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FLYING

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SEPTEMBER • 1947

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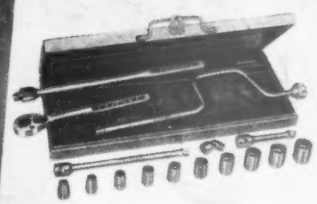

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LETTERS

THUNDERSTORMS

"Who's Afraid of Thunderstorms?" (July issue) surprised me very much since it seemed to make light of the hazards of flying in thunderstorms. We insure airplanes, among other things, and believe it is not to the interest of the flying public to print such an article unless your facts can be proven, and we have considerable information showing that

flying in poor weather and in and around thunderstorms is very dangerous business. Such bulletins as the Civil Aeronautics Board Safety Bulletin No. 154 gives information quite to the contrary of that appearing in your article.

S. L. BAKER
President
Michigan Millers Mutual Fire Insurance Co.
Lansing, Mich.

We protest minimizing the danger of thunderstorms. Even though lightplanes meet blind-flying specifications they should not be flown through or near thunderstorms as they are unable to combat the violent turbulence.

E. R. STURGEON
Employers Mutual Fire Insurance Co.
Wausau, Wis.

We do not think that a magazine of your stature should contain such an article . . .

W. H. BRADLEY
Assistant Secretary
Grain Dealers National Mutual Fire Insurance Co.
Indianapolis, Ind.

. . . It has been proved that thunderstorms are one of the most severe flying hazards and your article disregards this . . .

HENRY L. JOHNSON
Manager,
Inland Marine Department
Northwestern Mutual Fire Association
Seattle, Wash.

I have no doubt that the facts in the thunderstorm article are completely correct. But FLYING is read, I believe, mostly by operators of small aircraft, and although the third paragraph of the article states that lightplanes can withstand thunderstorms only if they are adequately instrumented, I am afraid some pilots may lose their present healthy respect for thunderstorms.

C. S. RICH
Aviation Sales Manager
American Mutual Liability Insurance Co.
Boston, Mass.

. . . We suggest that you refrain from publication of such articles . . .

GERRY E. SEIDER
Manager, Aircraft Insurance Dept.
The Badger Mutual Fire Insurance Co.
Milwaukee, Wis.

We believe you should take the necessary steps to retract any statement made in the article which would create an impression that thunderstorms are of little consequence to the pilot who handles his plane carefully when flying through them.

H. FOLGER ALLEN
United Mutual Fire Insurance Co.
San Francisco, Calif.

● Our insurance company friends would do better to pay closer attention to the content and meaning of FLYING's article, and less to the letter-writing campaign urged on them by the Transportation Insurance Rating Bureau of the Mutual Fire Insurance Companies. Our article did not make light of thunderstorms, nor did it even suggest that private pilots fly through them. And if the United States Weather Bureau, its Thunderstorm Project, and the experts connected with the project cannot be regarded as authorities on the subject, who can? FLYING simply reported the facts as these experts found them. FLYING will continue to report such facts.—ED.

DELAYS AT BORDER AIRPORTS

In the "Have You Heard?" column (May issue) there was an item stating that a survey team is making a tour of border airports to cut down time wasted

on the ground with customs and immigration. May I suggest they stop at Burlington airport? When I was there almost an hour was wasted on the ground while an immigration officer took his time asking many questions that had no connection with immigration. It's time some-

(*Continued on page 99*)

Own the Leader... PIPER CUB

Farther in the Lead Today than Ever

TODAY one out of every three personal planes that are bought in its price fields is a Piper Cub—the leader in sales because it's the leader in value, economy and safety! You'll quickly find out why Piper is preferred by more people than any other personal plane when you compare the leader with all other planes at anywhere near its price. Remember—only Piper makes the Cub!

The New PIPER CUB Super Cruiser

This 3-passenger plane, illustrated above, has a 100-horsepower engine, an electric starter and a two-way, two-band radio. Top speed is 115 m.p.h. Normal cruising range is 600 miles . . . and 700 at economy cruising. Standard equipment includes auto-type, spring-filled seats, dual controls, dual hydraulic brakes, parking brake, muffler, steerable, full-swivel tail wheel, cabin heater. Your best value in the three-thousand-dollar field!

The New PIPER CUB Special

This new 1948 model, illustrated on the book cover at the right, is the big value in the two-thousand-dollar field. A two-passenger plane, it gives approximately 20 miles per gallon, has a top speed of 100 m.p.h. and cruises 300 miles non-stop. Interior offers new seating comfort and improved visibility. Standard equipment includes dual controls, dual hydraulic brakes, muffler, cabin heater, compass, carburetor heater, steerable tail wheel.

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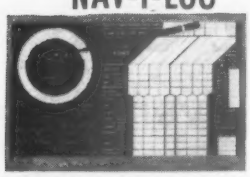

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HAVE YOU HEARD?

. . . **A rain-repellent lacquer** for airplane windshields, developed by Lorr Laboratories, has passed tests at Ames Aeronautical Laboratory, Moffett Field, Calif. Ground and flight tests indicated that vision through the lacquer-sprayed portion of the windshield was almost as good as through a dry windshield.

. . . **Sleeperette is a new type seat-berth** installed in Pan American Clippers (Pacific-Alaska Division). At the touch of a button, the seat becomes a full-length sleeping unit. Where the distance between conventional type airplane seats is 40 inches, between sleeperettes it's 60 inches to give more room for passengers' legs. To provide this extra space the Clippers, which normally carry 44 passengers, are being refitted with only 30 sleeperettes. Each includes curtains to provide a private bedroom in flight.

. . . **Books on every aviation subject** are being stocked by Aviation House, 17 N. State Street, Chicago. Just opened, the shop is prepared to supply any aviation book directly or by mail and it also takes subscriptions for magazines from any part of the world. The company also plans to undertake research problems in aviation literature.

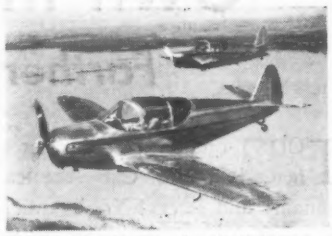
. . . **Two P-47s and a B-29 are being tested as fire-fighters** in the Lolo National Forest near Missoula, Mont. The planes will drop standard auxiliary fuel tanks filled with water and equipped with fuses set at a predetermined altitude so that the water will be scattered over the greatest possible area. Tanks filled with chemicals will be tested in the same manner. If the tests are successful with standard aircraft, the Forest Service and AAF will be able to call into action a number of operational planes from any AAF base near a fire.

. . . **Lightplanes recently purchased for the Army Ground Forces** for liaison work, reconnaissance and general communications work requiring landings and take-offs in short, rough areas include 62 *Navions* and 439 Aeronca Model 7BCs. This latter model is virtually identical with the *Champion* except for increased horsepower and added window area to increase visibility.

. . . **More errors in air navigation are caused by erratic compasses** than by faulty wind forecasts, William P. Odom, pilot of a recent round-the-world plane, recently declared. He combined dead reckoning with a Sperry gyrosyn compass to make an accurate circuit of the globe, independent of celestial navigation. With the gyrosyn and proper pre-computation of courses, he believes that "dead reckoning is of sufficient accuracy to fly safely the long-range, over-water routes of the world."

. . . **"The sun never sets on Cubs"** is the claim of Piper Aircraft Corp. for its far-flung aircraft. Biggest importers have been Argentina (184) and South Africa (178). There are about 20 *Cubs* in Portugal, 10 in Spain, six in Syria, 20 in India. The only personal plane delivered to China since the war is a *Cub* now hangared in a former Japanese bomb shelter. Mexico has taken delivery on 75, 20 have gone to the Canal Zone, 14 have been ferried to Cuba and about 350 have been manufactured in or shipped to Canada since the war.

. . . **The Swift is back in production** at Texas Engineering and Manufacturing Co. in Dallas which recently acquired all rights to the two-place plane from the defunct Globe Aircraft Corp. Its first move was to slash the price



Swift sells now for $1,000 less.

more than $1,000 ($3,750 for the deluxe and $3,250 for the standard model). With improved production methods, Temco believes it can make a profit at the new figures since it has written off all development costs. The company has been in operation 18 months manufacturing sheet metal products and doing modification and conversion work for the AAF and some airlines.

. . . **Round-the-world air service** from 42 cities in the United States will soon be available under arrangements recently announced between United Air Lines and Pan American Airways. United's planes will connect with Pan American's international route once a week at Los Angeles, New York and San Francisco. Fare from any point will be $1,700 plus $40.60 tax. A distance of 21,000 miles will be flown in about 130 hours. Passengers may stop over at any point along the route providing they complete the trip within one year. END

20 MINUTES FROM THE Common

HANSCOM AIRFIELD was recently released to the Commonwealth of Massachusetts for civilian use.

The Commonwealth has accepted the field and plans to develop it as Boston Airport Number Two. It is located in Bedford on Route 2A, twenty minutes' drive from the center of Boston.

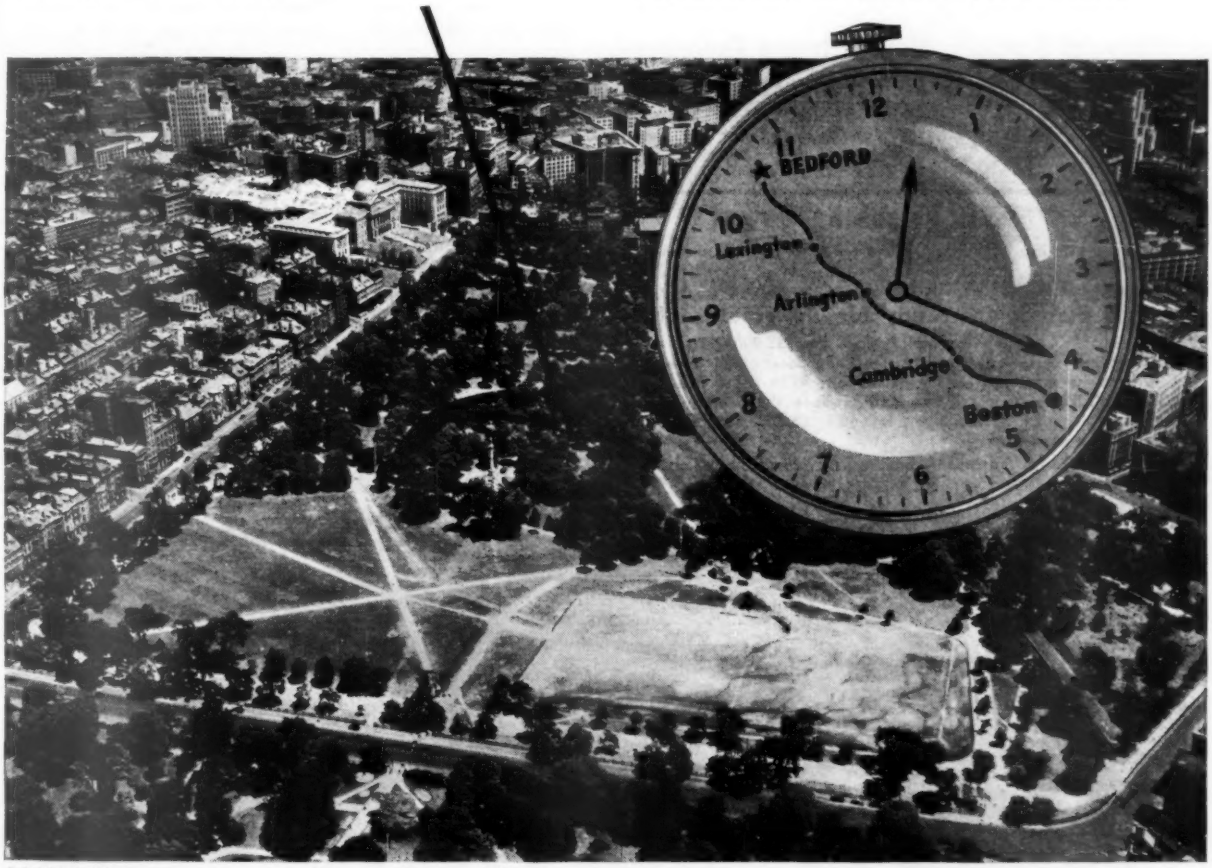
The Airport area consists of 600 acres and has three 7,000 foot runways.

A Control Tower is in operation twenty-four hours a day with radio facilities operating on 212 kilocycles.

These facilities, offered to resident and transient fliers, are operated by the East Coast Aviation Corporation. This Company is fully equipped to give all types of service and has the largest supply of parts and accessories for planes and motors. These are sold both wholesale and retail.

Complete motor and plane overhauls can be made, especially on Continental motors and Stinson and Aeronca airplanes. This Company has an accessory overhaul and exchange program for parts such as: carburetors, magnetos, generators, starters, radio instruments, etc.

In addition to the usual facilities available at the larger airports, visiting airmen can enjoy the new restaurant and can hire drive-yourself autos.



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A Statement by Texas Engineering & Manufacturing Co. .... New Manufacturers of the Famous All-Metal Swift

THE GLOBE SWIFT has been acclaimed one of the nation's few truly "post-war" personal aircraft. It combines advanced performance with exceptional utility and flying ease. Many pilots call the Swift the finest airplane in the two-place field. More than 1,200 Swifts now flying in North and South America, Africa, and Europe have won international recognition for splendid cross-country performance. Texas Engineering & Manufacturing Co., Inc., is proud to announce the purchase of patent and manufacturing rights on the Swift from the Bankrupt Globe Aircraft Corporation along with tools, raw materials, supplies and sub-assemblies. Temco's full resources are now behind continued Swift production and servicing. We assure all Swift owners, dealers, and prospective customers that the Swift is in the field to stay.

Financial Strength, Manufacturing Experience

Temco is one of the Southwest's major post-war industrial firms. Gross sales in 1946 totaled more than $5,000,000.00 with more than $6,000,000.00 gross business scheduled for the current year. Temco is operated by former executives of North American Aviation in 1,000,000 square feet of the former N.A.A. plant near Dallas. Almost 2,000 skilled workers are employed in the air-conditioned plant and about 90% of them are experienced former North American Aviation employees. Temco's many different manufacturing activities help guarantee stability and security for both dealers and customers. Production of the Swift is not new to Temco, as 330 Swifts were produced on contract for Globe Aircraft Corporation, and 40% of the component parts for all Globe Swifts were Temco made.

A CAA Certified Operation— The Civil Aeronautics Administration has certified Temco as an aircraft manufacturer, conversion, and modification plant. Contracts are now in the shop for the U. S. Army Air Forces, and several domestic and foreign airlines, Fairchild Airplane Co., and for non-aviation commercial products. Temco has plenty of plant and plenty of "know how" to build real aircraft quality into the new Swifts.

Swift Prices Go Down!

Now you can get your new DeLuxe Swift for $3,750, or the Standard Swift at $3,250. Temco plans to build sales by keeping prices in line with competition and by giving you the most airplane per dollar.

Both models are ready for immediate delivery.

How can we reduce prices now? More than $2,000,000 were invested by the now dissolved Globe Aircraft Corporation in developing the Swift to its present state of perfection. With these heavy expenses already taken care of, Temco can produce the Swift at lower cost. These savings are passed along to you in the form of an even better Swift at a lower price.

Two important improvements on the new Temco Swifts are the Steerable Tail Wheel and (on the DeLuxe only) a Metal Top Canopy.

Service and Parts Are Available

Plenty of genuine Swift parts are in stock now. Parts and Service are offered through established dealers with factory service offered where dealer service is not available. Nation-wide Sales and Service organization is now being set up. Write for the name of nearest Dealer.

The Swift is the only airplane in its class approved by the Veterans Adm. as a secondary trainer for G. I. flight schools.

The Swift

To Swift Owners—So that you may be registered as a Swift owner to receive new Service Bulletins and other valuable information, you are invited to write immediately to Owner Service Department giving your name, address and the N. C. and manufacturer's Serial Number of your Swift.

TEXAS ENGINEERING & MANUFACTURING CO., Inc.

P. O. BOX 6191 F • DALLAS, TEXAS

Stinson Voyager owner and family prepare for vacation take-off in America's No. 1 Utility plane.

Why more people are buying STINSONS than all other 4-place planes combined!

THE BEST WAY to discover the many reasons for the Stinson Voyager's overwhelming popularity, of course, is to have your Stinson dealer take you up on a demonstration flight. In the meantime, here are a few facts for you to consider:

1 **Stability and Safety.** The Stinson Voyager is a "fly-anywhere" plane . . . can land and take off safely from short strips, small fields, even pastures and golf courses. "It almost flies itself!"

2 **Lower price.** Yes, the new Stinson Voyager and Stinson Flying Station Wagon actually cost *less* than any other 4-place plane in America . . . an advantage made possible by Stinson's 21 years of production know-how.

3 **Quality features.** Flaps for quick take-offs, and slow, short landings. Built-in wing slots for safety. Inherently spin-resistant. Two-way radio with dome loudspeaker. Landing and navigation lights. Soundproofed cabin with controlled ventilation. Starter.

4 **High Utility.** Famed as America's most *useful* personal plane . . . carries a useful load of 965 lbs. at a cruising speed of 125 m.p.h. . . . offers you and your family (4 people) comfort, roominess, and plenty of space for luggage. Unexcelled for business use, too.

5 **Stinson builds a Flying Station Wagon!** America's first combination four-passenger and "cargo" plane. Load capacity: Pilot, and 552 cargo lbs. The two rear seats can be replaced in 5 minutes to make it a 4-place plane.

6 **Adaptability.** Certified for wheels, skis, or floats. Perhaps, like many owners, you'll prefer floats, so that any handy waterway becomes your "landing strip."

FREE—*20-page, full-color catalog. Write to Stinson Division, Department D, Consolidated Vultee Aircraft Corporation, Wayne, Michigan.*

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For 21 Years—America's Most Useful Personal Plane

They All Choose **Du Pont "LUCITE"** *

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COMMONWEALTH "SKYRANGER"

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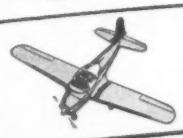

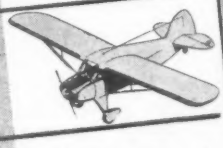

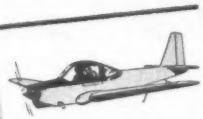
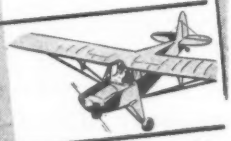

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An enclosure of "Lucite" acrylic resin transmits over 90% of light rays... is shatter-resistant and extremely durable. In normal service, it lasts for the life of your plane. And one-piece construction of "Lucite" eliminates blind spots.

"Lucite" is easy to install and care for. Yet it costs even less, in medium and greater thicknesses, than other plastics sometimes used. E. I. du Pont de Nemours & Co. (Inc.), Room 259, Plastics Department, Arlington, New Jersey.

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Plastics
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

PUTS NEW ZIP IN YOUR FLYING *Automatically!*

AEROMATIC* PROPELLER SELECTS ITS PITCH WITHOUT EXTRA CONTROLS OR INSTRUMENTS

That's right! An Aeromatic doesn't change your instrument panel a bit. But it makes a whale of a difference in your flying! Shorter take-offs, faster climbing, better cruising, safer landings . . . less fuel consumption and engine wear . . . An Aeromatic does all these things for your personal plane by maintaining correct pitch every second of the way. And this "propeller with a brain" is the *only* propeller that does it *automatically!*

WRITE FOR INFORMATION! If you own a new plane or plan to buy one, enjoy the extra advantages of an Aeromatic Propeller. Write to your aircraft manufacturer or distributor and ask about an Aeromatic for your plane. Or drop us a line for your free Aeromatic booklet. Koppers Co., Inc., Aeromatic Propeller Dept., 239 Scott St., Baltimore 3, Md.

CUSTOM TAILORED FOR THE PLANES THEY FLY

They are available now for most new planes and are being approved for other makes and models.

Aero matic

The propeller with a brain KOPPERS *for your personal plane*

Air Controlled Automatic Propeller--Licensed under Patents of Everel Propeller Corp.
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¼ SHORTER TAKE-OFF: Automatically with engine at full throttle, Aeromatic Propeller assumes low pitch. Gets plane off ground quickly with full take-off power.

⅓ HIGHER RATE OF CLIMB: Automatically responds to natural forces. Increases pitch as air speed rises. Gets plane to cruising level fast, on minimum fuel.

GREATER CRUISING RANGE AND SPEED: Aeromatic automatically maintains the best pitch for top cruising on minimum fuel at any level up to critical altitude.

SAFER LANDINGS. Aeromatic automatically adjusts its pitch for a long, flat glide. Moves to low pitch instantly for a quick pickup if pilot overshoots his field.

Where does Taylorcraft go from here?

C. G. TAYLOR

We have designed and produced light aircraft for more than twenty years. Among our designs were the Taylor Cub and the Taylorcraft. After production was well under way on the Taylor Cub, I sold my interest in it. After the Taylorcraft had won wide acceptance, I sold my financial interest in the Taylorcraft Aviation Corporation. This Company later over-expanded and went into bankruptcy.

Taylorcraft Distributors and Dealers were so well sold on Taylorcraft airplanes that they pooled their money, bought the assets of the dissolved Taylorcraft Aviation Corporation and prevailed upon me to head their new organization . . . "Taylorcraft, Inc."

We believe that no other light plane manufacturer is better adjusted to present conditions. Only Taylorcraft distributors and dealers own Taylorcraft stock. Everyone receiving money from the Taylorcraft till is a working member of the Taylorcraft organization. This is making possible a better product for the customer, at lower cost.

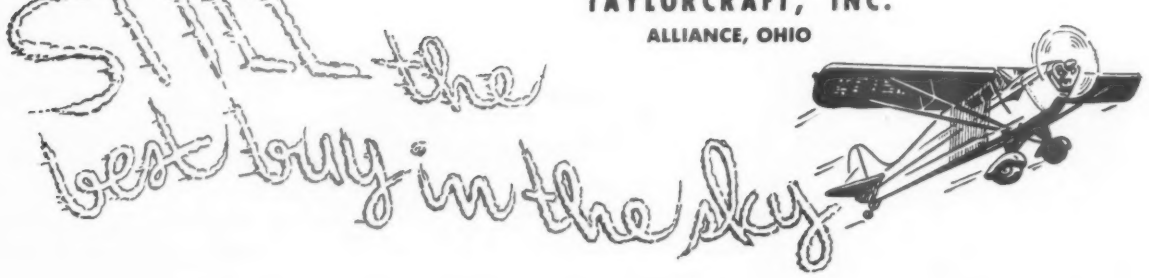
Right now, we are delivering the new 65 H.P. "Model 47" Taylorcraft, with 18 gal. fuel capacity, 380 mile cruising range, cabin heater and many additional improvements, for only $2295.00.

Within the next few months we will announce other new models that will be of interest to all.

We're on our way with Taylorcraft, Inc. You can be assured that we will give you the honest values, superior service and advance designs that everyone has learned to expect of Taylorcraft.

C. G. Taylor *President*

TAYLORCRAFT, INC.
ALLIANCE, OHIO



Holder of a pilot's license since 1938 . . . considered one of the really veteran cross-country women pilots . . . and manager of the Auburn-Lewiston Airport, Mrs. H. M. Dingley, Jr., says: "We are sure of giving the flying public high-quality lubricants and fuels when we service with Esso. The constant research that goes into Esso products assures us of high performance . . . with Esso! More and more, owners who are desirous of fine performance from their airplanes insist upon high-quality Esso Aviation Products."

Signed: — Lucille M. Dingley

MRS. H. M. DINGLEY, JR., is the efficient and active manager of the Auburn-Lewiston Airport that opened at Auburn, Maine, in 1937.

The right way for an airport to grow, believes Mrs. Dingley, is by rendering *outstanding service.* And part of that service at the Auburn-Lewiston Airport is Esso Aviation Products—the fuels and lubricants that stand for *quality* in the skies.

Behind the high quality of Esso Aviation Products are over 40 years' aviation experience... the industry's largest aviation test cell... and the nation's largest petroleum laboratories—*reasons why* so many of the airport operators who believe in giving their customers satisfaction *now service with Esso Aviation Products!*

No. 20 IN THE SERIES, FEATURING PROMINENT ESSO AIRPORT OPERATORS

Samuel Colt, inventor of the revolver—the great "equalizer" which figured so dramatically in our conquest of the West

Top Speed, 184 mph; Cruising Speed, 172 mph; Range, 750 miles

A Great New "Equalizer" for the Business frontier... the BONANZA

Walter H. Beech, pioneer in aeronautics, who produced the Beechcraft Bonanza as a modern "equalizer" in business transportation.

ONE INDIAN on a horse could send a dozen arrows at a Texas Ranger before the Ranger could dismount to use his long rifle. But to this unequal duel came Samuel Colt's "equalizer"—the six shooter—which stopped the Rangers' enemies in their tracks.

To today's business frontier comes an equally potent "equalizer"—the Bonanza, an airplane built for business, giving town and city businessman alike new mobility and range.

The four-place Bonanza is a fast airplane, cruising at 172 mph, but does it with the economy of 165 hp at a cost as low as one cent per passenger mile! Add the Bonanza's limousine-like luxury, its quietness, and its easy maneuverability in and out of the smallest fields—and you have air transportation that is tailored to fit the businessman's needs!

The Bonanza comes fully equipped—two-way radio, landing lights, instruments, heater, electric retractable landing gear, flaps, controllable propeller and other refinements. Your Beechcraft distributor will be glad to demonstrate it—and to discuss its adaptability to your transportation needs. We are still filling a large backlog of orders. Additional ones will be filled in sequence.

Beech Aircraft

CORPORATION WICHITA, KANSAS, U. S. A.

A N E D I T O R I A L

☆

UNCLE SAM IN WONDERLAND

IN HIS quest for a security program, Uncle Sam has become startlingly like Lewis Carroll's little Alice, who stepped through the looking glass into never-never land, where everything was upside down.

Despite the gigantic world W.P.A. program to which we are committed, American security will still have to come from American strength at home. In the weird light of never-never land, with its banker complex and denizens in striped trousers, this simple cold fact is difficult to recognize.

At the very moment we are making this jaunt into the international dream world, the security defenses of the United States are falling apart.

We hardly have a good skeleton air force. The airplane manufacturing industry is in a desperate situation. The all-important air transport system is the subject of various commissions concentrating on its deficiencies and failures, but little is done constructively by the Government to tide it over the present growing pains and assure its expansion. Even the modest program for airport development has been trimmed drastically in the name of economy. Private flying itself receives little encouragement and support, and instead is made an object of regulation by individual states, which tends to make the cost of flying almost prohibitive.

This is happening at a moment when America is sending billions of dollars abroad, all in the fair name of security. Yet we cannot find money to give America a decent air establishment.

The very heart and key to our national defense is a top-notch, professional air force, sitting constantly on the alert in the ready room. It must be backed by an industry geared to an instant emergency. At its side must be the biggest possible air transport system, capable at once of moving men and materials with the greatest efficiency and speed.

Anything else is bunk. Anything less is dangerous.

To starve our defense establishment on the plea of necessary economies, and at the same time send billions abroad to equip little *opera bouffe* armies which could not last 24 hours against a first-class adversary, just doesn't make sense.

Continued on the following page

If our domestic air economy is powerful, we can fight a war anywhere with a reasonable prospect of winning it. When one cuts through the maze of two-bit kings, petty dictators and foreign social experimenters whom we are supporting, this single hard fact remains.

At the moment we are told of a new plan to send $24,000,000,000 more abroad.

It seems reasonable to ask—where is all this money to come from? If we cannot build an adequate air force, underwrite our airport and air transportation systems, or back our factory organizations with the required funds, we obviously have no surplus left to undertake this luxury operation.

There should be no objection to feeding the needy over the world. If this is the primary object, we can tighten our belts a bit for this purpose. But when it is alleged that these great sums are being utilized for purposes of American security, the proposition veers over to the fantastic side.

It is sufficient to mention that at a time when America is in a violent controversy with the Russians, the British are selling not only heavy machinery but the latest model jet planes to the Soviet Union as part of a great trade deal arranged between them. By our loans to Britain we are financing all this, yet we cannot finance the domestic air economy on which our own essential well-being and security must depend.

It is also important for us to develop assured sources of supplies, of tin, oil, rubber and other materials, instead of tying our foreign policy to the tail of some foreign kite. Today we are back where we were in 1941, getting our rubber from Malaya, our oil from Arabia and so on down the line. The oil of Arabia is a case in point. If there is to be a war, the Arabian oil fields could be over-run in 12 hours by a nearby enemy, leaving us in the same position we were in when the Japanese suddenly seized our sources of supplies in the East Indies. It would be cheaper and saner for us to tap the vast unexploited oil sands of the far North, or to work in closer collaboration with Latin America, where the oil can be protected.

At some point, the very life of our nation may be at stake in this business. It is up to us to survey it with cold realism, in which our interests are clearly defined and given first consideration.

Americans should insist on a unified, professional air force, capable of holding its own against all the rest of the world if necessary. They should insist on government subsidy for the industrial air establishment until the transition can be made into a great peacetime industry. They should insist on sympathetic government assistance aimed at vastly expanding the present air transport system, as well as private flight.

As far as the air is concerned, this must remain the American Century. Americans will do well to remember this, as well as the old axiom: "Charity begins at home."

William B. Ziff

FLYING
SEPTEMBER
1947

Airmen's Ranch

Pilots' lounge forms attractive backdrop (top) for outdoor "bull session" between pilots and guests. Lounge has a huge window (below) which looks out over the airfield.

Looking for a garden spot to fly to? Try the Flying L, in Texas.

DOWN in the hill country of south central Texas, two miles from the little cow town of Bandera, lies the Flying L Ranch, probably the most luxurious pilots' haven in the country. Owned by Col. J. H. Lapham, a millionaire oilman, the Flying L is an airpark and dude ranch with swimming pool, fishing, horseback riding, hunting—and, of course, flying. The two hard-surfaced runways are arranged in "T" pattern and can accommodate planes up to DC-3s in size. There are full shop facilities, and fast and efficient service to visiting pilots. The Flying L has a main ranch house and a dozen superbly appointed guest houses. The pilots' lounge is also a community building with facilities for dinners and dancing parties.

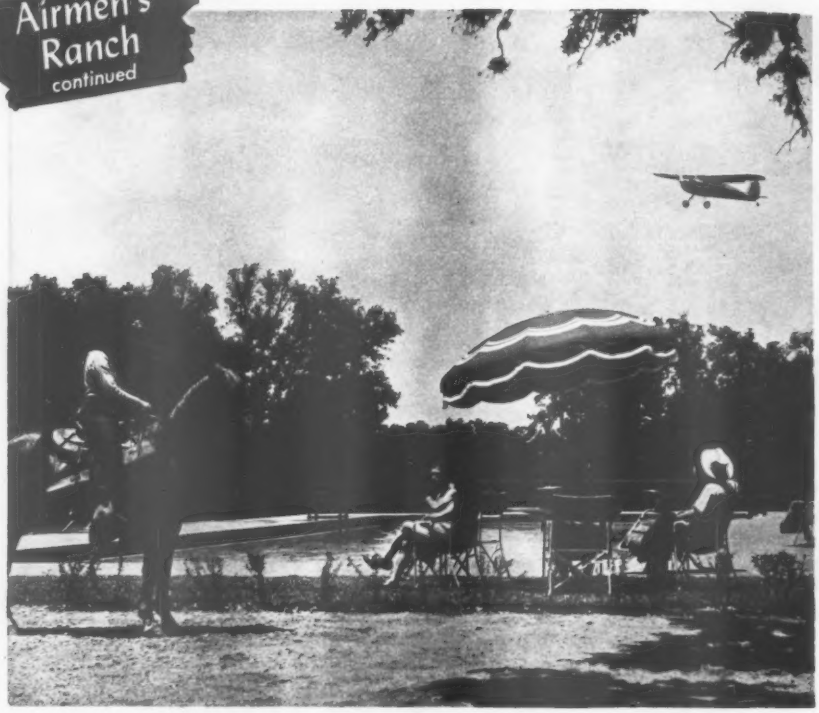
Continued on Next Page

Flying L nestles among low hills of south central Texas. In background are hangars and pilots' lounge of the flying center. In the wooded area near lower part of photo are the luxurious guest cottages.

Texas Top Hands is a band which plays for the western dance held every Saturday night.

Guest cottages have central living room, fireplace, two large bedrooms, cost $15 per day per person under American plan.

Airmen's Ranch continued



Swimming pool, bordered by a wide sun deck, has its own filtration and chlorination system. Swimming is also available in St. Julian Creek which flows through the ranch. Other recreational activities include flying and riding. There are weekly summer rodeos in Bandera.

Main ranch house is surrounded by the corrals, farm buildings, farm animals and cultivated farmland. It houses guests and has a central living room with a huge fireplace. Cost is $8 per day per person.

Servicing facilities up to major overhaul are available at the Flying L's hangars.

Lura and Gil Burton of Corpus Christi, Tex., dance to the Top Hands in true western style.

Siesta time beneath the trees of the Flying L. Low hills of Bandera County can be seen in background beyond the parked Beechcraft and Cessna. Nearby Bandera village is the center of a recreational area

PHOTOS BY ARTHUR E. HAUG

Fishing is a popular sport. The ranch has leased a fishing area of clear water lakes which are kept stocked with fish. This lake is a five-minute flight from the ranch, and a landing strip has been built on its shore for guests. Guests also hunt deer and wild turkeys.

Eating, as at most resorts, is a major sport. Sunday evening buffet lunch was prepared by L. Koll (lower) ex-hotel chef

Campfire singing after an outdoor meal lends western atmosphere to entertainment.

Calf roping is easy—at least if you're as skilled as 18-year-old "Doodlebug" Teich, a top rodeo performer who coaches guests on plain and fancy cowpunching. Guests learn to hunt from horseback.

Missionairmen

Charting practice flights for "Missionairmen" Links (left) and Jackson, Instructor Robinson points out their preaching stopovers.

Young missionaries are learning to use airplanes in their work

SERVICE potentials of some 20 young mission-field trainees at the Moody Bible Institute have been increased immeasurably since the Rev. Paul F. Robinson started teaching them to fly. And the flight-training program Robinson organized for MBI should be of interest to any air-minded person—especially those who have initiated or planned similar projects for the speedier spread of Christian missions.

In pre-war days mission boards of even the largest religious organizations had to content themselves with Model T, or even oxcart transportation. That was the best available for such primitive areas. Then came the war and military air invasion of areas mission boards had listed as "impossible" territory. Air armies left behind not only the conviction that lightplanes could be used in such areas but much of the "know-how" and even some of the equipment required. Mission boards started making studies. They found that a small moderately priced plane can land virtually anywhere and that it cruises at 100 m.p.h. or better. In almost any area it would provide fast, comfortable transportation that, in the long run, was about as inexpensive as any other sort. But an airplane needs a pilot and for the missionary field the pilot must be specially trained—in flying, as well as in many other re*l is*
skills such as field maintenance and repairs. P*shed*
there an opportunity for such planes to get t*oblem of*
airports with maintenance facilities.

Long before his colleagues ran o*r*

Proud smiles signify Jennie Allen's successful completion of dual instruction. Robinson required mid-winter training in ski-equipped plane as realistic preparation for her assignment to far north.

providing leadership for a religious flight-training program, the Reverend Mr. Robinson, then pastor of the Baptist Church in Amsterdam, N. Y., had planned to become a flying missionary to an isolated post in the jungles of Brazil. Spare moments were spent at the airport learning to fly in a friend's plane. It added up to a slow two years of self-imposed training. It was only a few months before Pearl Harbor that the determined young pastor thought himself ready. Writing a letter to his church's mission board he requested assignment to the mission post. In the letter of application he described his education, his qualifications—and he gave his age, 30 years.

It was that factor only that got Robinson's application turned down. Thirty-year-old men are too old, said the mission board, to start such rigorous activities as foreign missionary work. Robinson had to find other religious service in which to invest his flying experience.

Then the war broke and the Civil Air Patrol called for private pilots to fly lightplane patrol missions. Enlisting in the CAP, Robinson spent whatever time he could spare from his church flying patrol along the Canadian border. Thus, while serving his country, he piled up plenty of valuable cross-country flying experience. All the while he was preparing himself for another shot at serving the cause of Christian missions.

Maybe a 30-year-old parson is too old to become a flying missionary, Robinson reasoned, but he's certainly not too old to train younger "sky-pilots" for the job. That's the reason he wanted all that flight time—he needed it for his crack at an instructor's license. He was never forgetting his main aim in life.

By 1945 U. S. flying restrictions on lightplane private pilots had relaxed and Robinson bought himself a second-hand airplane. He passed the flight instructor's test and was ready to start his own flying school. It was fairly easy to get a few graduate ministers for students, but the younger ones didn't have much money. Flying expenses were high and even though Robinson gave his instruction free and rented his airplanes at cost, he could not afford to sponsor the training of those who could use it in missionary work. Realizing that his independent training program wouldn't work, Robinson sought to associate himself with a large missionary (*Continued on page* 89)

Ground-school class meets with Preacher-Pilot Robinson in Institute's hangar. School requires 198 hours of ground training, 50 hours of flight.

Servicing the school's fleet (two Cubs, a Super Cruiser and a Stinson) and learning emergency repairs are part of the training routine.

The Airplane Goes To Press

Press plane is Cessna 140, used to cover news events and is available to deliver papers to isolated regions.

Salt Lake Tribune-Telegram finds that planes help news and picture coverage, reduce costs.

1 **Planning press flight** to wrecked train are the author and Brandt Gray, news photographer. Their plane is a Taylorcraft.

2 **Reaching the wreck,** Photographer Gray snaps picture while Pilot Halliday buzzes disaster scene at only 150-foot altitude.

Huge Geneva steel plant at Provo, U., provides another example of airplane news coverage. Speed Graphic shot from 1,000 feet covers whole plant. From ground it could only be pictured in piece-meal sections.

By BOB HALLIDAY

Editorial Department, Salt Lake Tribune-Telegram

YOU couldn't find Pilot, Nev., on the map April 6, 1946. The next day, by a vagary of fate which nearly wiped it out of existence, Pilot was pinpointed on maps and pictured by aerial photographs on the front pages of newspapers throughout the nation. The photos were obtained for nationwide dispatch in a swift behind-the-news action which dramatizes the growing use of light-planes to cover spot news events.

This time it was a train wreck. At 4:20 p.m., April 6, 1946, the *Exposition Flyer,* crack Western Pacific train, jumped the track. Ten passenger-filled cars careened crazily through the tiny desert town in a nightmare of twisting steel and splintering wood, tearing up 100 yards of right-of-way, crushing three of the eight sun-baked dwellings of Pilot, and ending their plunge stacked up like poker chips in a neat pile along the right-of-way.

Bad news doesn't always travel fast. It was 7 p.m. before word of the disaster at Pilot reached editorial rooms of the Salt Lake *Tribune-Telegram,* 138 miles east.

Since these two newspapers cover an area stretching roughly 300 miles in each direction from Salt Lake City, U., sparsely populated and with uncertain communications, speedy coverage is uncertain and difficult at best. Staff reporters and photographers could get to Pilot by auto in three hours but the matter of obtaining suitable pictures and an accurate account of the tragedy would take additional hours which, coupled with the long drive back to the city, would leave early editions the next day without pictures.

A plane leaving at daylight the (*Continued on page* 86)

3 **Gray's photograph** of wreck was not only a better view than could have been taken from ground, but took half the time.

4 **Off the presses** in record time comes the story. Without the press plane, it would have missed the paper's early editions.

All-metal skis are rigged on Cub by mechanics of Air Activities, Inc., at Meson County Airport, Ia., during winter return trip.

Eight-point buck mule deer was shot by Mary on the camping trip. She also helped on trapline; loved the outdoor life.

Lynx trapped in Smith Valley, Nev., faces his tormentors. Another bobcat pulled 18-pound trap-drag more than a mile.

Aerial Trappers

By JOHN CALKINS

Sportsmen pay way with pelts as they spend 90 days on air tour of the West.

Two lynx, caught by author.

ARE you seeking a formula for an expense-paid air tour of the United States, packed with thrills, flying experience, and outdoor living? Try our recipe:

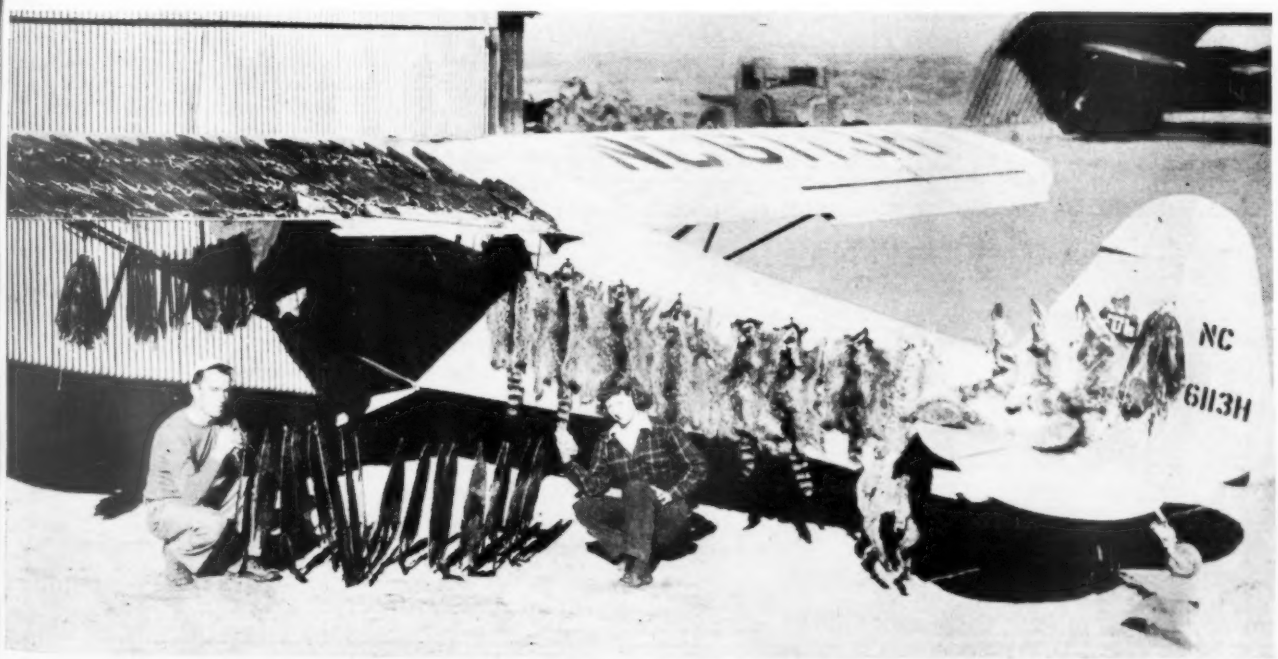
It all started on a Friday the thirteenth, the September day that Lowell and I earned our private pilot's licenses. Lowell Marvin, my brother-in-law, is always ready for a good adventure. So are my sister, Mary, and I. We three put our heads together and came up with a plan: a three months' trapping trip. It was mid-September now and three months would give us time to make the trip and return to our Michigan home before Christmas. Lowell and I both have had trapping experience and felt that with a little luck we could find a spot that would pay our expenses if we trapped intensively for a few weeks. The Western states seemed most inviting.

A fortnight was spent collecting equipment and making plans. We decided to buy a new Piper *Cub*. Of course we couldn't carry all our equipment in the *Cub*, but we would need ground transportation anyway and we planned to take both automobile and airplane.

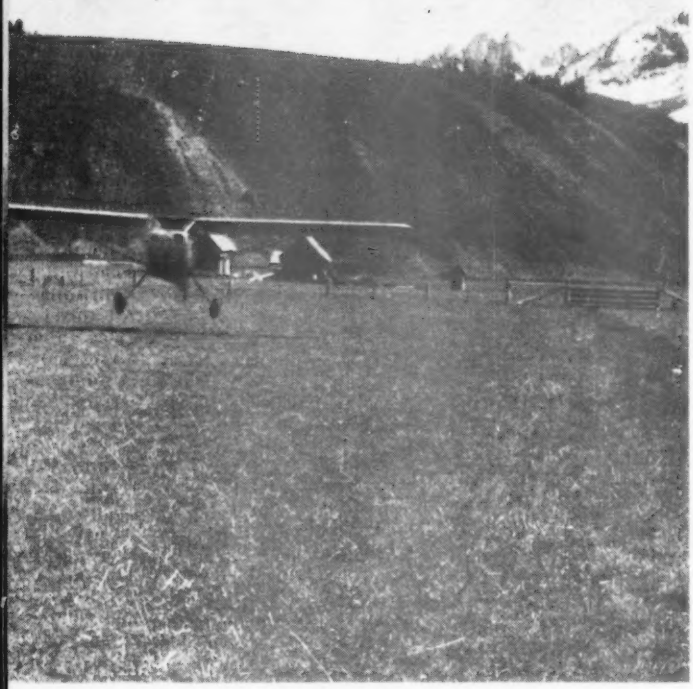
We removed the rear seat from a Ford two-door sedan and piled that space to the roof with equipment—several hundred steel traps, shotguns and rifles, tent and stove, cooking utensils, food, axes, gasoline cans, cameras, and innumerable other items. On the roof we glued a large oilcloth arrow for identification from the plane.

The day of departure arrived at last. We drove to the nearby airport—Knapp Field, New Hudson, Mich.—as the sun came up to welcome a golden Indian Summer morning. The first two days we traveled steadily cross-country, with Lowell and I relieving each other at the controls every half day or so. At Pecatonica, Ill., I traded car for plane and took off to meet Lowell and Mary two hours' flight to the west at Dubuque, Ia. After 10 minutes in the air I reached in my pocket for chewing gum and discovered the one and only set of car keys! A 180° turn followed in short order and I landed as Lowell and a mechanic were eyeing the lock of the car, screwdrivers in hand. I turned the keys over and nosed westward again.

On the third day I drove ahead to Sherburn, Minn., where we had agreed to meet. After considerable difficulty I located the airfield. I drove past it twice before I realized it was anything but a pasture, as it was a grass field and no aircraft or hangars were visible. It later turned out that Lloyd Alsworth, the owner, was away with his Aeronca and the hangar (*Continued on page* 97)



Final fur catch, sold later in Michigan for $675, is displayed on Cub by Lowell and Mary Marvin. Stringer in their hands holds pelts of 19 mink. Other furs include 200 muskrat on wing and hanging in nearby bundles, seven raccoon, two lynx, three coyotes.



Pasture landing is easy on Silva's 2,700-foot strip at Stanley, Ida.

A FLYING Holiday

Southern Idaho

For plane owners who are tired of flying around airports, here is another in a series of features designed to help pilots plan aerial vacations. We'd like to hear details about your FLYING Holiday.—Ed.

Like variety? It's yours on a tour of these Western mountains

By BOB HALLIDAY

Editorial Department, Salt Lake *Tribune-Telegram*

ARE you hungry for a taste of the great outdoors? Got a few days off? If so, there's a sportsman's smorgasbord awaiting you and your plane out in southern Idaho. A four-course bill of fare includes stops at Sun Valley, Yellowstone Park, and the famous fishing waters at Sunbeam and Big Springs.

For a complete sports treat it's hard to beat Sun Valley's swimming, golfing, horseback riding, skeet-shooting, and hunting. Or the fishing at Sunbeam and Big Springs. Or the spectacular beauty of Yellowstone Park.

All of this is found in a part of the West where towering mountain ranges, rearing 10,000 to 12,000 feet high, furnish an endless panorama.

The cost naturally depends on your point of departure.

Redfish Lake is good check point on Stanley leg.

Starting from Salt Lake City, Ut., George Bettridge—a staff photographer for the Salt Lake *Tribune-Telegram*—and I made the rounds recently in a Cessna 120 for a cover charge of $34.20 (9½ hours flight time @ $3.60 per hour, club rate). Autoists would be clipped $76.86 (25 hours driving time, 1,098 miles @ 7¢ per mile). The rest of the bill depends on your appetite.

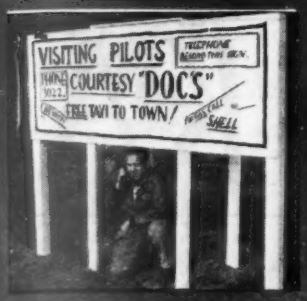
Sold? Then the first thing to do is give your ship a thorough physical exam. Motor asthma is mighty disconcerting when you're flying over rocky or tree-studded terrain. If your baggage limit will handle sleeping bags, take them and be independent of cabin accommodations which are usually sewed up in advance. Better still, write for reservations if you can plan a couple of weeks in advance. Throw in your tiedown stakes, fishing tackle, clothes and toothbrush and take off.

If you leave from Salt Lake City, head northwest over the tip of Great Salt Lake, pass over Burley, and then cross a corner of the lava beds of southern Idaho.

Only yesterday, geologically speaking, volcanoes were spewing molten lava over this 9,000-square-mile plain. Flying over it today, the black, porous-looking surface of craters, caves and weird formations closely resembles the surface of the moon as seen through a telescope.

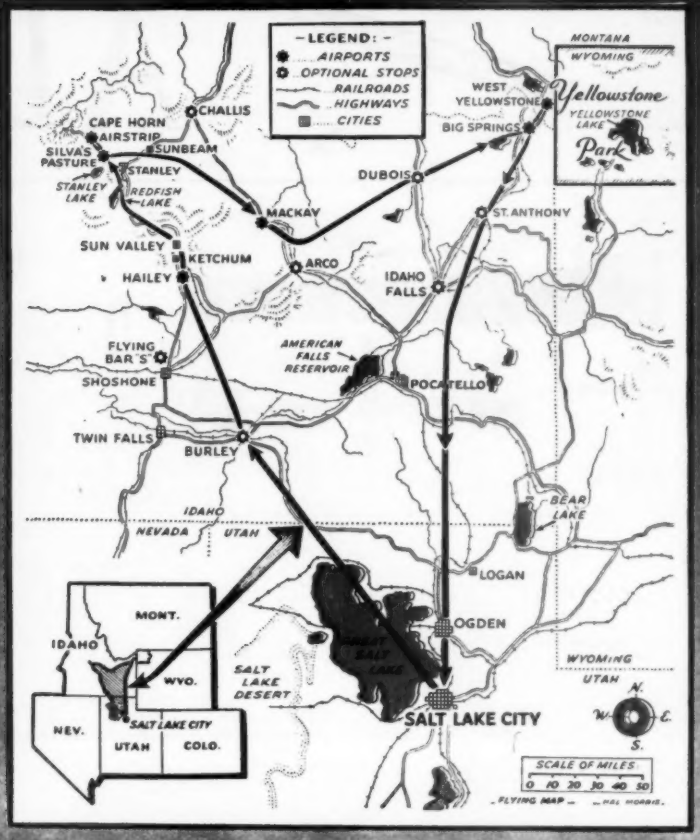
After the lava beds you hit the fringe of mountainous central Idaho, marked "primitive area" on the road map and colored solid brown on the air map. Heading up Sun Valley, you soon reach Hailey, the first stop.

Hailey Airport, only field near Sun Valley Lodge with gas and oil facilities, is just south of town and west of the only highway. The port has two dirt runways (NW-SE 5,200-feet; E-W 1,400-feet) and is located at an elevation of 5,300-feet. Shake hands with Bob Savaria, manager. He stocks 80-octane gas at 32¢ a gallon and handles major repairs on light aircraft. (*Continued on page* 70)



Trip cameraman George Rethridge takes advantage of taxi service (left) at WestYellowstone.

Big salmon landed in year-round fishing waters of the Salmon River.



Sun Valley lodge (nearest camera) and the Challenger Inn Village are located near 1,500-foot Ketchum landing strip.

A FLYING Holiday

ALASKA

The Yukon is but a fraction of the fishing waters.

Here is a fabled land for sportsmen and their planes.

By CHARLES E. PLANCK

ONCE you get to Alaska, you're in for some wonderful vacation flying.

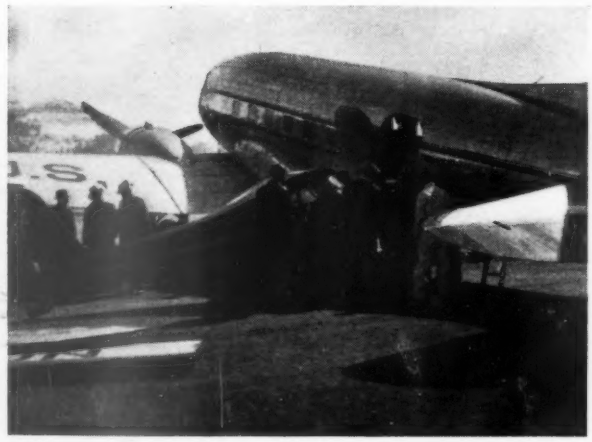
But one of the important things about a flying vacation in the Territory is getting there. And because Alaska is what and where it is, another important item is the cost. It isn't like flying to the Ozarks or Miami, so start out fairly well heeled.

During the war a bunch of the boys were hangar-flying in Anchorage, when a private flying enthusiast from "outside" asked the local pilots about encouraging pilot-owners to visit Alaska after the war for flying fun. He got several simultaneous answers. Burleigh Putnam, Chief of the Operations Branch of the CAA at Anchorage, hit the popular tune.

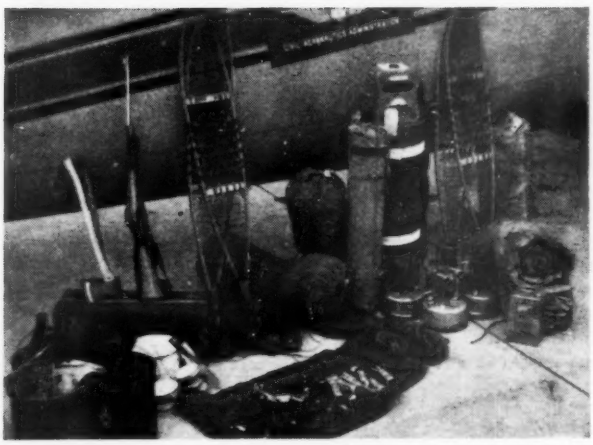
"For my sake, for our sakes, tell them to stay at home." And then seeing the look of surprise at this inhospitable display, he began to explain. "We spent 260 hours (*Continued on page* 62)

Juneau, the capital, lies in the middle of the Panhandle, that long mountainous coastline west of British Columbia.

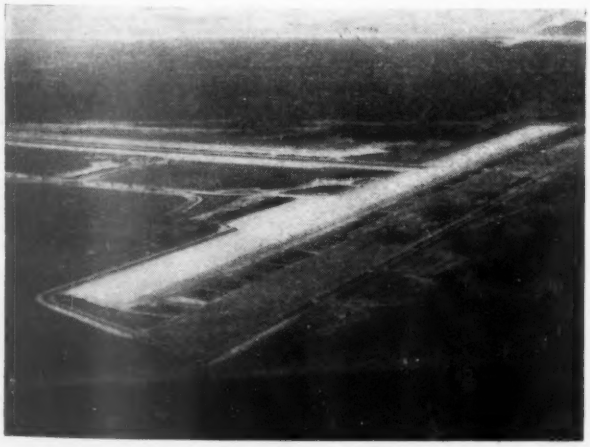
Small planes must fly to Alaska along the war-built Alaskan Highway. Landing fields average about every 100 miles.



Everything goes by air in this bush-pilot's paradise. Even this Taylorcraft is hauled from Juneau to Anchorage by DC-3.



Emergency gear is required by law in all planes. This is the amount carried in a 10-passenger CAA Alaskan transport.



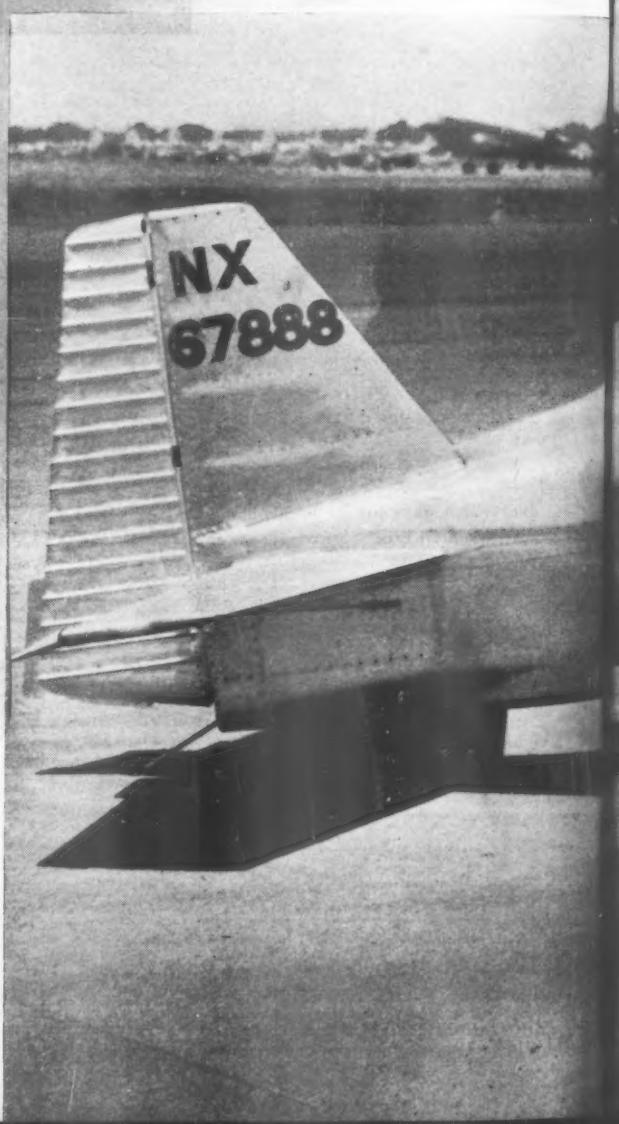
Haven in the wilderness is this new 5,000-foot runway CAA field in southeast Alaska—one of many new airfields there.

Airways communications are good. Joseph A. and Anna Ray Dale are CAA husband-and-wife team at Nome station.

Runt Racers

Tiny "Cosmic Wind" will fly 200 m.p.h. on an 85-h.p. engine, owners claim.

Smallest man-carrying airplanes in the world will compete at Cleveland National Air Races over Labor Day weekend.



By GAITHER LITTRELL

Western Editor of FLYING

TINY mosquito-like planes will roar over Cleveland on Labor Day weekend in a battle royal designed to restore the importance of the skilled pilot in National Air Races competition. Mammoth high-speed craft will be stuck in a back seat during the Goodyear Trophy Race, while some of the country's best pilots race in runt planes for a $25,000 prize.

But thrills and prize money may not be the only results of this Cleveland air encounter. The country's average pilot may find that he owes a real debt to U.S. high-speed air jockeys. Just as the Indianapolis Speedway races have proved invaluable as guides in automotive design, so lightplane design may be influenced by the Goodyear race.

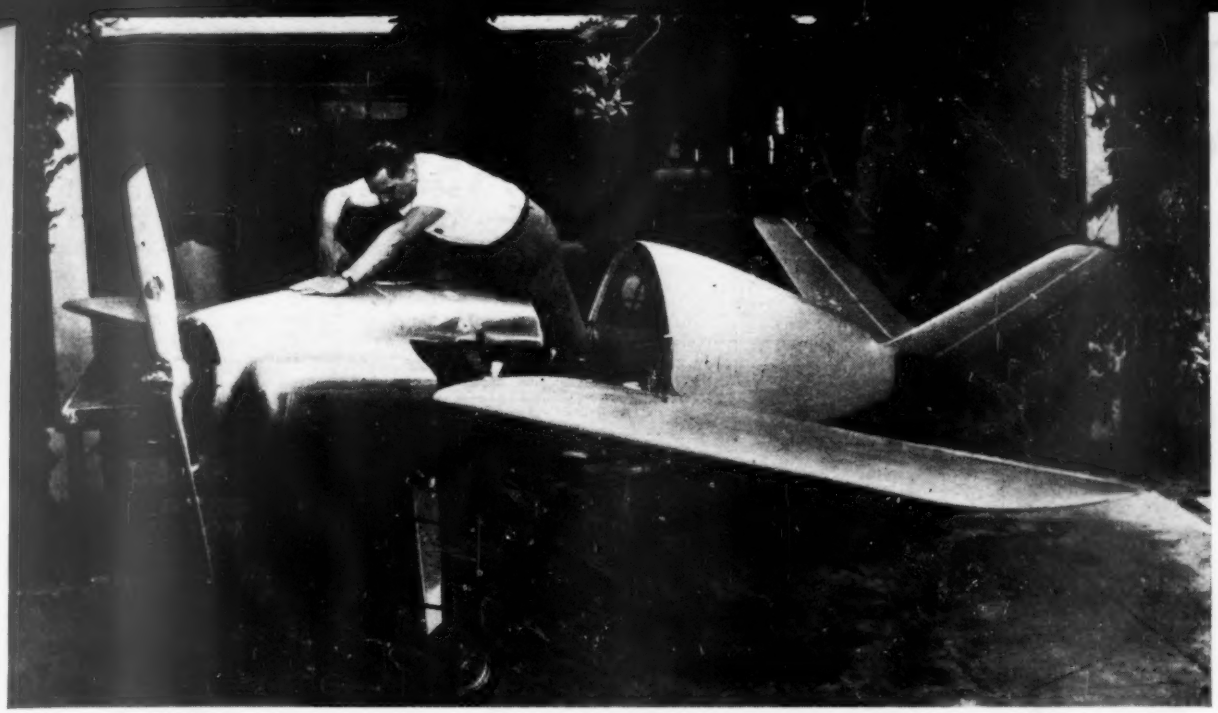
Participating planes have certified small engines identical with those used in standard lightplanes. Radical departure is in design and size of the aircraft. Should these planes demonstrate unusual characteristics at Cleveland, future U.S. private pilots may find themselves flying in speedier, safer and better-designed airplanes as a result.

Lightplane design improvement was probably secondary in the minds of the men who created the Goodyear Trophy Race, however. Behind the event lies a story—of a group of men who want to hold on to the days when race pilots and not their planes are controlling factors in the air race victories.

More than 80 members of the Professional Race Pilots Association left the National Air Races in 1946 in a dissatisfied mood. Art Chester, veteran Los Angeles pilot and president of the Association, complained:

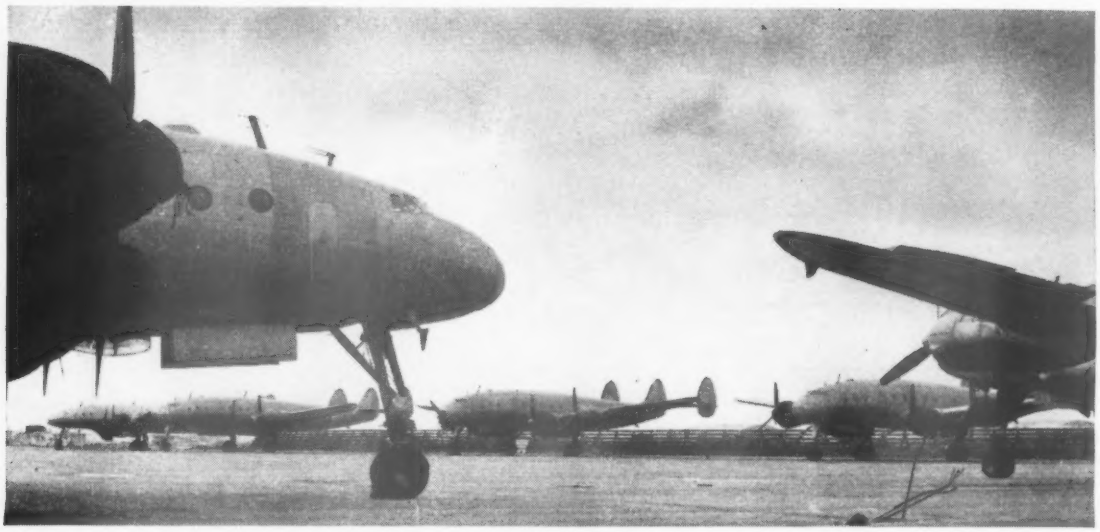
"Competition, not extremely high speeds, makes a race —whether in airplanes, automobiles, horses, or bicycles. Spectators started leaving the races in 1946 before they were over, just because there was no competition."

So Chester and his organization set out to promote a new type of race, featuring individual flying ability in highly maneuverable pocket- (*Continued on page* 95)



Midget racers undergo final tune-ups. Art Chester, Los Angeles, gives butterfly-tailed 520-lb. "Swee'pea" a last-minute check (above). Test Pilot Herman ("Fish") Salmon jockeys "Cosmic Wind" (below) with the help of Glen Fulkerson, one of 800-lb. plane's designers.

REPORT FROM WASHINGTON



Constellations on sale by WAA surplus disposal are now priced at $20,000 though two of six (above) brought $40,000 apiece.

By FRED HAMLIN

LOOK for startling new developments in the helicopter field, not only to cure the recent hub troubles, but to revolutionize the machine's design. Patents now under study by the Patent Office are being hailed by the engineers who have seen them as promising tremendous improvements.

Plane Sales

Don't take too literally the recent statement by William A. M. Burden that some 2,000 planes a week change hands. It's true, but if you jump to the conclusion that all exchanges are on account of unhappy owners, you're wrong. Of the 2,000, from 400 to 500 change hands from manufacturer to proud new owners. From 1,000 to 1,100 are second-hand sales, including those by the War Assets Administration. The remaining 500 change hands because owners have defaulted payment on chattel mortgages. In the words of Ben Stern, Civil Aeronautics Administration publicist: "It is hardly fair to count new planes as turnover, nor the chattel mortgage actions. Thus, between 1,000 and 1,100 planes actually change hands. These latter figures would have been far more accurate in describing the current situation."

Sad Story

Remember Eldon, Mo., last year's candidate for the airpark capital of the universe, where every boy and girl was to be a pilot and all the town fathers were airminded? Well, our favorite agent dropped in there the other day and reports it ain't so. Despite Aircraft Industries Association's 1946 enthusiasm, coupled with equal fanfares from the aeronautical commission in Missouri, we learn that Eldon is so markedly unenthusiastic about the flying machine that the model airpark is losing money and the manager is about the lonesomest man in town.

Lightplane Notes

From Wichita comes word that the new Fairchild looks like a cross between the *Navion* and the *Bonanza*. Fairchild execs don't know when you'll be able to buy one, or for how much . . . Aeronca's new plane is actually a *Chief* with 85 h.p. instead of 65. The only visible difference is a longer vertical fin. They are now experimenting with a 125 h.p. engine in a *Champion*, and have loaned a *Chum* to Goodyear for cross-wind tests on tricycle gear . . .

Stone

Sometimes a rumor in Washington persists so long it becomes a fact. So we went to some pains the other day to find out what kind of a person George Andress Stone is. The persisting rumor was, of course, that he would succeed William A. M. Burden as Assistant Secretary of Commerce for Air. Our best sources tell us Stone is a swell guy. Head of the Civil Air Patrol in Ohio during the war, he is 45, has been flying nearly 20 years (pilot's certificate No. 30946) and undoubtedly is more than sympathetic with the average pilot's trials, tribulations, and needs for improved equipment (he flunked an instrument examination a few months ago). He does a lot of business flying as president of the Tubular Weaving Co., Columbus, O., and flies his family on vacations. He's a Quiet Birdman, and comes from an adventuresome family. His father, Julius, explored the Grand Canyon of the Colorado and wrote a book (*Continued on page* 80)

Geologist with a Plane

Seaplane enables specialist to save six days per week.

GUY HARRELL'S job is to measure the rise and fall of lakes and rivers on a 470-mile route fanning out from Orlando, Fla., for the U.S. Geological Survey. It used to take him a full week to check his seven continuous water stage recorders which are located in some of Florida's wildest country. With the Taylorcraft seaplane he now can do the job in a single day.

Harrell was on the same job before the war. Reaching each gauge meant several miles of driving over spine-jarring corduroy roads, a hike through rugged woods and swamp, a rowboat voyage through alligator-infested bayous, and then spending less than 10 minutes jotting down information from the gauge.

During the war Harrell flew *Black Widows* in the South Pacific and returned to his job with 1,300 flying hours under his belt. He had seen what airplanes could do and concluded he would be foolish not to use them to reach his isolated stations, each one of which is plunk in the middle of a ready-made waterport. The data he gathers is necessary for water engineering problems.

Flying Geologist Harrell checks chart before taking off from seaplane base on Lake Mann. Plane can land near every water station along his route.

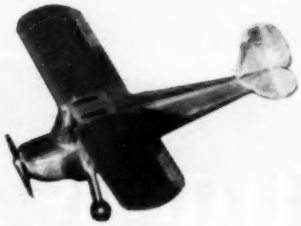
Stations house graphs which record water levels continuously. In one recently, Harrell discovered a coiled water moccasin.

Arriving fishermen are greeted by Dr. Harry Watson, flight chairman, and the field mascot—two men making like a horse.

Follow-Me truck guides taxiing Meyers OTW to parking area. The airport has two sodded strips, one of them 3,300 feet long.

Set for fishing trip on Menominee River, the sportsman pilots found the bass biting very well—but the season was not yet open.

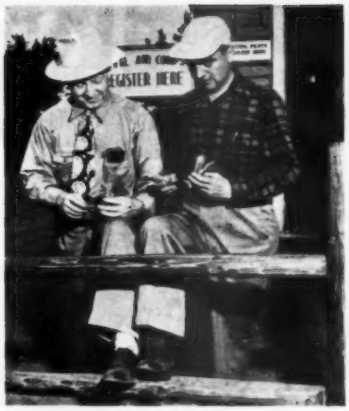
Fish Flight



Weather was fit only for fish and ducks, but 20 planes joined Badger flight anyway.

PHOTOGRAPHS BY ARTHUR E. HAUG

FISHING was the bait that lured angler-pilots of the Wisconsin Civil Air Corps to a fly-in at Quinnesec, Mich., the weekend of June 6-8. Twenty planes managed to swim through the rain and fog that settled in over most of the state to land at Northland Airport, near the Michigan-Wisconsin border. Here the visitors formally presented the first Michigan charter of the Civil Air Corps—a Wisconsin-born organization of sportsman pilots. They fished—perhaps for patriotic reasons—on the Wisconsin side of the Menominee River which defines the state boundary. They caught northern pike and found the bass biting like mad—but unfortunately out of season. They also danced and ate "pasties," a kind of meat and potato pie. CAC members are already planning next year's fish flight, when the weather will be good—and late enough for an open bass season.



Pilots W. A. Gardner and Fred Pfennig study flight's guest books.

Northern pike, pulled out by Mr. and Mrs. Earl Acker, were the first fish caught by the pilots.

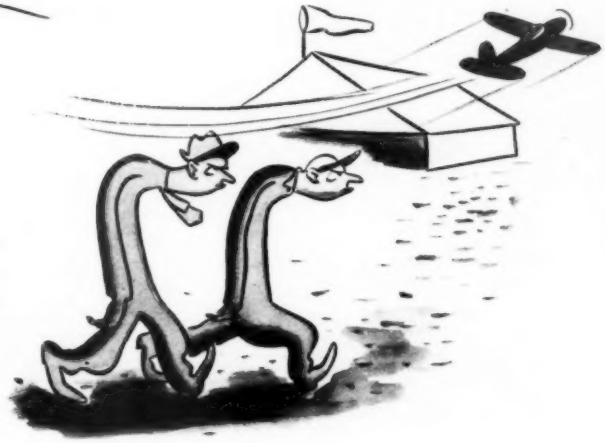
Strange Field Landings

ILLUSTRATED
BY
FRANK ADAMS

STRANGER, you're welcome at any airport in the country if your manners are good. Airport courtesy is mainly common-sense and consideration for the other fellow. But in case you'd like a fast brush-up, the Emily Posts of the CAB have issued a five-cent pamphlet, "Strange Field Landings," whence these ideas came.

Don't hog runway! After his flight this lad doubtless needs a quick bath —but he just doesn't know that accidents happen on the ground, too.

Watch for obstructions! This unfortunate pilot has just learned that the Airman's Guide could have told him about this ditch.



Don't buzz the field! The worst enemy of the airport is the hot-shot who streaks madly across the field, through the traffic pattern.

Don't cut anyone off! It could all end up very seriously—as anyone can plainly see. Other aircraft may be faster or slower than yours.

Don't argue right-of-way! One of these airport lawyers is undoubtedly right—but is it important enough to warrant smashing up his airplane?

Taxicub circles LaGuardia Field with Passenger Sam T. Randall, who hired it in Middletown, N. Y. He reached LaGuardia in 40 minutes—a three-hour trip by other transport.

Randall's trip started at Hudson Valley Airport. Rita Romer takes his call.

Packing hurriedly, Randall will soon be off for the airport, two miles away.

Flying Taxis

Aerial cab service is being organized across the nation.

By JOHN H. LANCASTER

New York Editor of FLYING

IF YOU are one of America's small-city residents who has to get to a major airport in a hurry, and if time is more important to you than the cost involved, like Sam T. Randall, automobile dealer of Middletown, N.Y., just phone the nearest Piper dealer and order a three-place *Taxicub* to fly you to the nearest metropolitan airfield.

In August the Piper Aircraft Corporation was to open an advertising campaign to spread the gospel of this new form of commercial transportation. By the end of the year the company hopes it will be in every state and a number of territories and foreign nations with 1,500 planes on the job.

In Randall's case it was a simple matter to call Miss Rita Romer at Hudson Valley Airport, the largest of four in Orange County, N.Y., and less than two miles from Randall's office in the heart of Middletown. Randall hopped into his car and in less than ten minutes was in a *Super Cruiser.*

Another 35 minutes passed and his plane landed at LaGuardia Field, where the tower respects the plane as much as the large *Connies* and DC-6s awaiting their turns for take-offs and landings. Only 40 minutes had elapsed between his office and the airliner slated to fly him to Chicago in three to 3½ hours.

Had Randall decided to drive the 75 miles, it would have taken two hours to Times Square and another half hour to the airport. Or had he taken the Erie Railroad at $2.75 on one of its three daily trips to the big city he would still have needed 2½ hours and would face another 45 minutes by tube, subway and bus, or a half hour by taxicab at $2.50 to the airport. Buses which run four times daily at $2.28 per ticket would have consumed about 2½ hours and other city (*Continued on page* 88)

PHOTOGRAPHS BY WALTER STEINHARD

Randall boards **Super Cruiser** (above) after driving to Hudson Valley Airport from his home. After landing at LaGuardia Field, pilot taxis plane to the big Constellation that Randall will fly to Chicago. Leaving lineboy in plane, pilot helps Randall carry out luggage (below).

Farmers' Fly-in

Visiting farmers flew in 327 planes, mostly lightplanes. Airport's 6,000-foot runway fascinated them.

Convention proceedings were held in a Hutchinson hangar. Exhibitors of radios, lights, aircraft accessories, had booths along wall.

Evening dinner at Hutchinson hotel was attended by 180 flying farmers. Speaker of evening was W. T. Piper, early champion of farm planes.

Kansas convention shows that airplane is now a farm machine.

By MAX BURK

MORE than 327 lightplanes, piloted by flying farmers, barely slipped over that last barbed-wire strand to land at the Hutchinson, Kans., municipal airport recently. Their short-field landing technique looked strange on the 6,000-foot runways of this Class 3 airport. But these pilots, delegates to the second annual convention of the Kansas Flying Farmers, were boys who daily fly planes in and out of backyards where fields are short and tailwheels clear top strands by not-too-many feet.

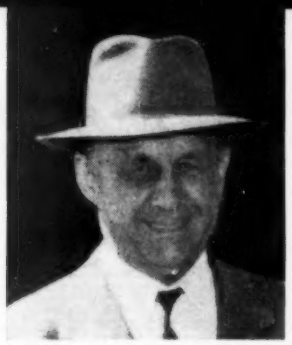
The 291 flying farmers registered at Hutchinson were airplane owners or pilots who earn at least 51 per cent of their income from farming. The farmers, their families and guests gathered for a two-day mixture of aerial circus, official pronouncements on aviation's future, social get-togethers and serious study of the airplane.

W. T. Piper, president of Piper Aircraft Corporation, spoke at the convention's opening in Hutchinson's American Legion Hotel Bisonte. Said he: "No group in America can use an airplane like the American farmer. To him an airplane is a piece of farm equipment."

We didn't have to look far to find proof of Bill Piper's contention that airplanes are useful on the farm. For example, Sheriff Jack York of Johnson, Kans., was at the airport. In Stanton County, where he holds office, the population is 1,500 plus, with 60 planes and 75 airmen's certificates. That's the basis for York's claim that it's the "flyingest county in the U. S."

When York gets word of a stolen automobile, he doesn't use old-fashioned road blocks. He deputizes private pilots, outlines a highway search plan, and phones the highway patrol when the hot car is sighted.

Among the flyers was Ailiff Neel, Windom, Kans., who farms 1,040 acres and flies a 1946 Taylorcraft. Neel has a custom combining crew which works from Oklahoma to North Dakota with the harvest. He has two landing strips in his wheat fields, and flies for miles on errands connected with his combining operations.



Kansas Governor Frank Carlson flew to meeting, predicted great U. S. aviation future.

Sheriff Jack York uses plane to enforce law in "flyingest county in the United States."

Granddaddy of Flying Farmers is Francis Angell. Started flying an OX Travel Air in '31.

Oldest pilot was not a farmer. Dr. V. O. Standish Sr., 64, of Larned, Kans., has an Ercoupe.

Farmer Ailiff Neel flew home at night to handle chores, but returned to meeting next day.

Flying enthusiast Marvin Moore has Piper Cub for short trips, Stinson for long hauls.

Personal landing strips owned by farmers are marked on Kansas map (below). Regular air charts don't show these useful fields.

Another veteran flying farmer is Francis Angell of Plains, Kans. He started flying in 1931 with an OX Travel Air. Since that time, he has owned a Stinson SM8A, the first 65 h.p. Taylorcraft in Kansas, a Stinson SR6, an Aeronca *Chief*, a Waco UME, and a Stinson *Voyager*. Now his farm has a Luscombe 8A for his two sons to fly, and a Stinson 150.

Farmers came to the fly-in from all over the state, and from Oklahoma, Minnesota, Colorado, and Nebraska. Governor Frank Carlson of Kansas flew to the meeting.

Features of the convention were a parade of new personal aircraft, an air show including low-flying P-51's, a Navy fighter squadron, and a flight of B-29's.

George Halloway of Waukeeney, Kans., was elected president of the Flying Farmers for the coming year, succeeding Alfred Ward Sr., of Johnson, Kans., who was named Kansas national director. END.

"C. G." IS BACK

By GEORGE R. REISS
Aviation Editor, The Youngstown (O.) *Vindicator*

C. G. Taylor and the company he founded are back together after a lapse of five years.

THE father of America's lightplane, C. G. Taylor, is at it again, this time with his favorite child, the Taylorcraft. Taylor will design planes; Taylorcraft will build them. That's good news to devotees of lightplane flying.

Taylor has regained control of the airplane manufacturing company he founded. After five years away from lightplane building he recently purchased the Taylorcraft Aviation Corporation's manufacturing rights at a bankruptcy sale. And now, with his first planes rolling off the line, he plans to produce three "practical" personal planes in the low-price field.

The new company, called Taylorcraft, Inc., has a rough road ahead to regain the place Taylorcraft Aviation held before it cracked up last fall. But the founder is optimistic. "We started small before and grew up," says C. G. Taylor. "We'll do it again."

Major problem now for the man who designed, built, and popularized early models of both the *Cub* and Taylorcraft is to find a new factory. Then he'll have to create some good new models—right at a time when all aircraft manufacturers are having rough sledding. But one of the first steps has been taken: the first "Model 47" Taylorcraft has been produced.

Just a word about Taylor:

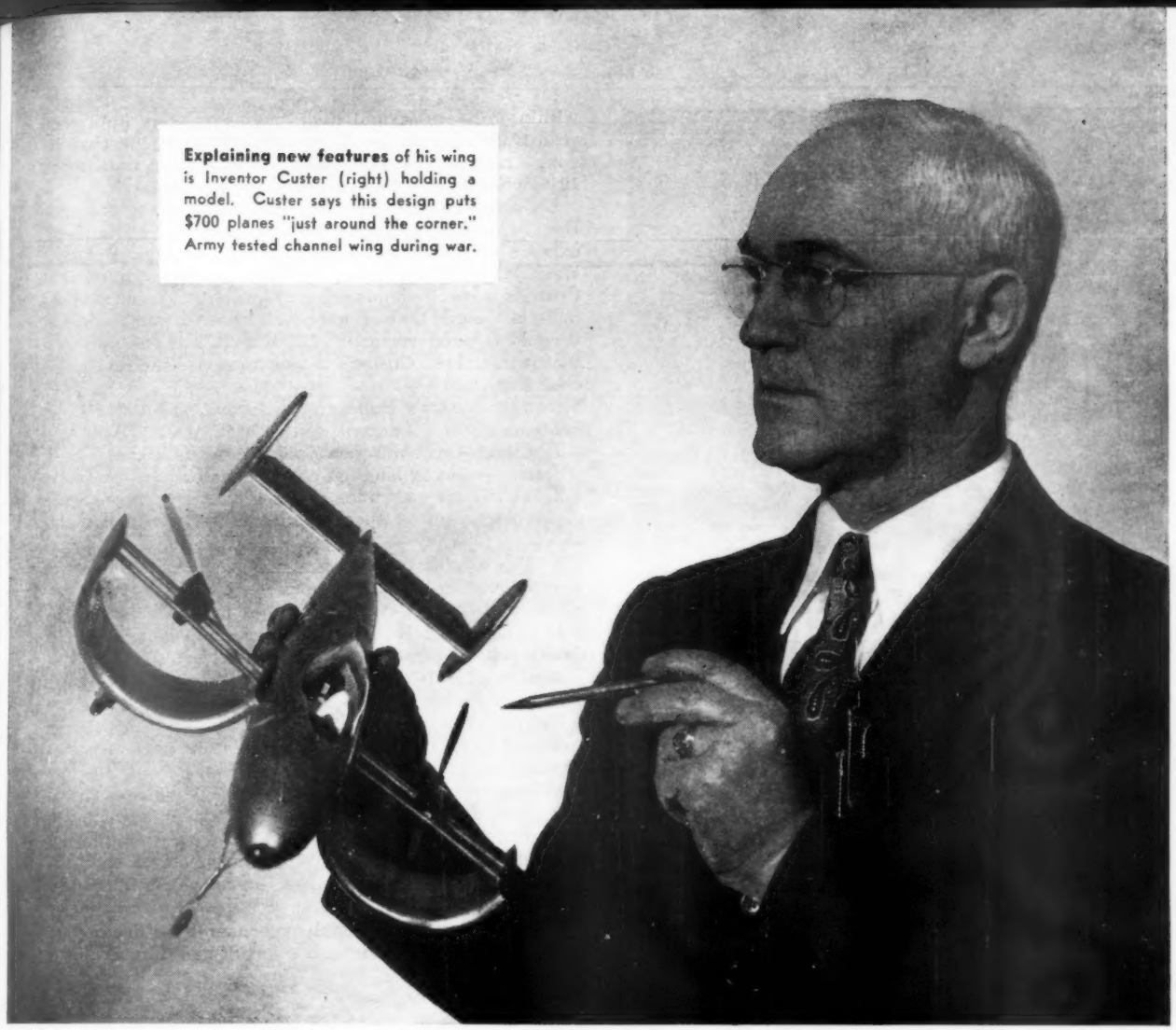
He was born 49 years ago in Rochester, N. Y., got the flying bug at an early age, and built his first plane in 1909 at the age of 11. It wouldn't fly—but what plane would, in 1909? About 1923 he bought a Curtiss *Jenny*, a World War I trainer. A pretty crude job, but C.G. had ideas.

He dismantled and redesigned it and brought forth a *Jenny* that would fly faster, land slower, take off quicker, and climb faster than the original plane. C.G. barnstormed in it but his real love was plane designing.

So he and his brother, Gordon, built a two-place side-by-side plane which they called the Taylor *Chummy*. On its first flight it spun in, killing Gordon. Though grief-stricken, C. G. did not give up. He begged and borrowed enough money for a factory at Bradford, Pa., where he built the *Chummy*. One of his backers was William T. Piper, wealthy oil man. But the plane wasn't popular. It was too expensive.

Then Taylor hit the jackpot. He designed the Taylor *Cub* with a 37-h.p. engine. It was a sensation. Despite the depression, sales soared. (*Continued on page* 68)

First 'Model 47' and officials of Taylorcraft, Inc., which produced it. C. G. Taylor, president, stands between O. F. Nesmith, vice-president, left, and Bernard Kapp, secretary-treasurer. Plane went to L. W. Hubert, Taylorcraft dealer.



Explaining new features of his wing is Inventor Custer (right) holding a model. Custer says this design puts $700 planes "just around the corner." Army tested channel wing during war.

The Shape of Wings to Come?

Inventor Willard R. Custer says channel wing will revolutionize present aviation designs.

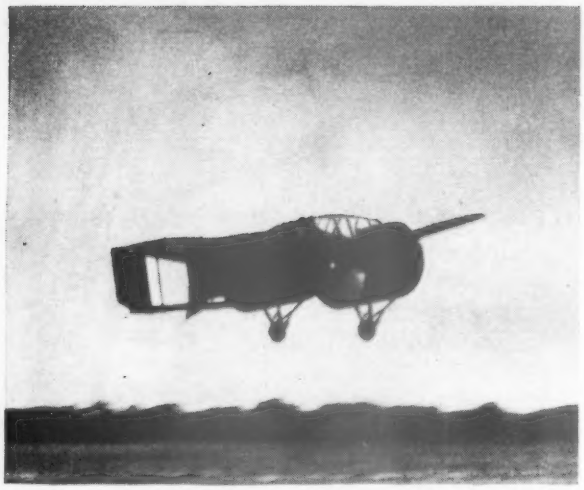
IF EX-AUTO mechanic Willard R. Custer's invention—the channel wing—does what he says it will do, the roadable, safe, $700 personal plane may be just around the corner. Also around that corner are transports which will take off on (approximately) a dime, will be gust-proof, and will have far more efficient wing-loading characteristics. As for supersonic craft, Mr. Custer is even more sanguine.

The Hagerstown, Md., aeronautical designer, who works more by rule of thumb than with standard complicated engineering equipment, has startled U. S. aviation experts with a recently revealed revolutionary wing design. It was super-secret during the war, when he worked with Army Air Forces aerodynamicists at Wright Field, Dayton, O. In a hush-hush operation, one of his radically designed planes was flown but wartime military restrictions prevented publicity.

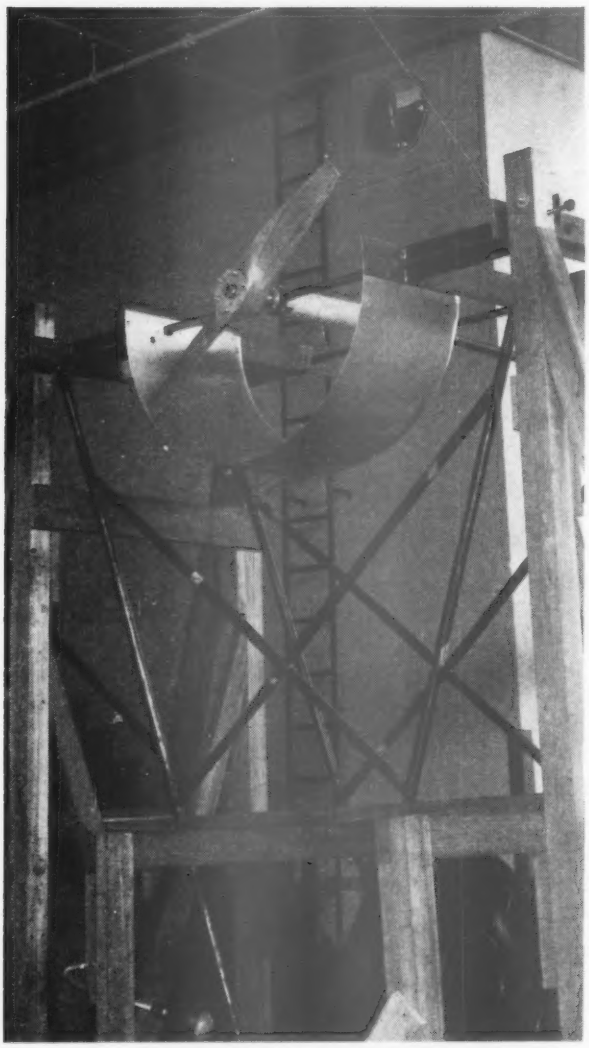
Now Custer reveals that he is working on another plane which "will fly this year before the snow does." If this second aircraft performs as expected, the Maryland inventor is confident his design will turn topsy-turvy most current wing design standards.

Heart of the Custer design is the "channel wing"—which somewhat resembles a half of a large wheel rim.

Chill skepticism greeted Custer when he turned up at Wright Field in June, 1944, with his new design. Technicians at the field were schooled in dealing with inventors and with crackpots who thought they were inventors. But



First successful flight was made during the war but security restrictions prevented release of only existing photo (above).



Supersonic models with flat wing surfaces were investigated by the Army Air Forces at Wright Field's laboratories (above). Preliminary reports indicated trials were successful, but lack of funds forced discontinuance of the entire research project.

within 48 hours Wright Field engineers were impressed with Custer's theories. They agreed to test the channel wing and they worked closely with Custer until July, 1946, when lack of funds stopped further research.

Enough research was completed, however, to convince Donald W. Young, one of the most skeptical of the AAF experts, that the channel wing has possibilities. Before a Washington patents court recently, Young testified that Custer's take-off claims are conservative. Custer said his lightplane could take off in about 15 feet. Young indicated it could take off vertically. The court was so impressed that it instructed Custer's lawyer to revise the inventor's claims upward.

Among Custer's claims for his designs, on which he holds more than a dozen patents, are:

1. Channel wing aircraft would be virtually crashproof, with take-offs and landings at 15 m.p.h. or less.
2. This is the only wing that can fly safely through the supersonic range of speeds and still be able to take off and land slowly.
3. The channel wing can attain greater lift while the aircraft is standing still than present wings do with the plane in motion.
4. Load-lifting capacity with the same horsepower is double that of present type wings.

Most of Custer's ideas originated in a chicken-house laboratory on his small farm near Hagerstown, Md. Even while working under AAF orders he spent much time there, where he has headquartered since he began experimenting in aerodynamics in 1927.

At Hagerstown he developed the theory which resulted in channel wings. Briefly, Custer's argument is this:

Conventional airplanes use up all their power pushing themselves through the air. Why, Custer asked, can't air be forced to pass by the airplane—using *power* instead of *speed* to gain lift?

After several unsuccessful experiments he decided to try to channel the air through a sort of half-funnel ahead of the props.

Results were startling.

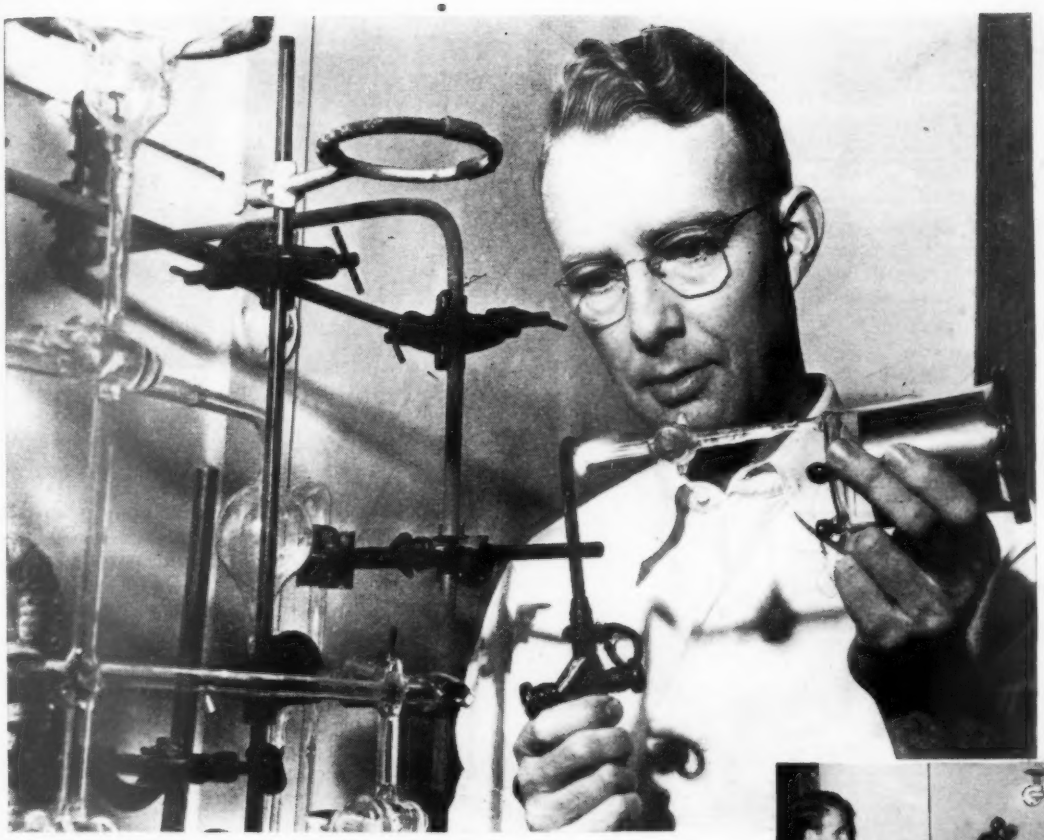
On the basis of these tests, Custer believes he can achieve the amazing wing lifting force of 500 pounds per square foot on wing area (compared with eight or 10 pound lift on present personal planes and about 50 pounds for transports). He points out that the conventional airplane today has practically the same lift efficiency as that of the Wright brothers.

Here's the Custer theory, simplified:

Propellers on either side of the fuselage draw air rapidly through two channel wings which look like half cylinders. Action of the air, stirred into motion, reduces the normal 14.7 pounds (sea level) of atmospheric pressure on the top of the wing. And, as pressure on the lower portion of the wing is unaffected, the relatively higher pressure on the bottom surface provides amazing lift. This lift is created even while the plane is stationary.

Custer believes his new design will conserve engine horsepower. He says the main difference between the Wright biplane and the latest airliner is better engines, since the basic lifting power and lift efficiency in each are nearly the same. Present type airfoils, he claims, split the air and result in a weak lifting force—compared with that of the channel wing—by creating a partial vacuum over the upper surface because the air travels a longer distance over the top of the airfoil than under it. Even this weak force must work at a disadvantage, he notes, because it can only gain lift when traveling at high speeds, thus consuming most of the engine's horsepower in pulling the plane through the air. The channel wing creates lift directly.

Custer, who estimates that he (*Continued on page* 79)



In his laboratory, Dr. Alvarez is a serious experimental scientist, constantly investigating new problems of physics and seeking unusual and unorthodox answers.

Dr. GCA

By GAITHER LITTRELL

Western Editor of Flying

Only 35, Luis Alvarez already has won the Collier Trophy and invented GCA.

At home he is a family man, somewhat embarrassed by the huge Collier Trophy.

THEIR faces intent, a group of eminent physicists, huddled around the age-darkened, wooden table at the faculty club, were carrying on a profound discussion, interspersed with explanatory curves and intersecting lines drawn on the back of a menu. All were associated with the Radiation Laboratory at the University of California.

One of their number, Dr. Luis Alvarez, had invented the remarkable Ground Controlled Approach (GCA) radar system for landing aircraft in zero-zero weather. Several had been associated with atomic bomb work and some were nuclear and cosmic ray experts.

Presently Dr. Alvarez leaned back in his chair and quietly addressed one of his colleagues in the group: "You're right. I hadn't thought of that before. I can see now that it's really nothing more than a syphoning action."

Turning to his luncheon guest, an unscientific visitor, he said: "You've seen those little novelty toy birds that perch on the edge of a glass and dip their beaks into the water periodically? Well, we just figured out how they work!"

Ferreting out the secret of how or why something works is the life job—and hobby—of Dr. Alvarez. The intricacies of the toy drinking bird were a challenge, so Alvarez and his friends merely figured them out.

Five years ago, when he was only 30 years old, Dr. Alvarez invented GCA. For that development, perfected in 1945, he received the nation's highest aviation award, the Collier Trophy, last December.

Luis Alvarez doesn't look his (*Continued on page* 73)

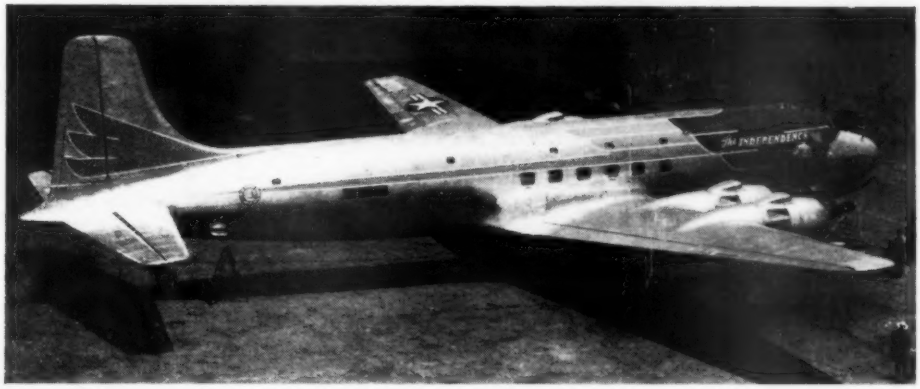
HAVE YOU SEEN?

Baumann Brigadier, small transport with twin 125-h.p. pusher engines, carries five persons and cruises at 150 m.p.h. Slated for 1948 production.

Four-place Luscombe Silvaire will have 500-mile range on 40 gallons of gas. It has a 165-h.p. engine. Cruises 130 m.p.h.

Pitts Special midget aerobatic job has 85-h.p. fuel injection engine fed by inverted fuel pickup system for all-altitude flying. It is five feet long with a 16½-foot wing span and 875-pound gross weight. Top speed is 152. It is experimental.

Rawdon T-1, built as trainer for commercial, night and instrument instruction, is powered with 125-h.p. Lycoming, lands at 50 m.p.h., cruises at 130, climbs 1,000 f.p.m.



"The Independence," a special DC-6 built for the President, cruises at 315 m.p.h., has top speed of 358 on four 2,800-h.p. engines, and a 4,480-mile range.

Bending nose gear enables Navy's all-jet XFJ-1 to "kneel down" on crowded deck of aircraft carrier, raising hot blast from tail above level of deck crew. Dolly is installed on nose wheel strut (see inset). Plane is lowered to kneeling position with a hydraulic hand pump located in radio compartment.

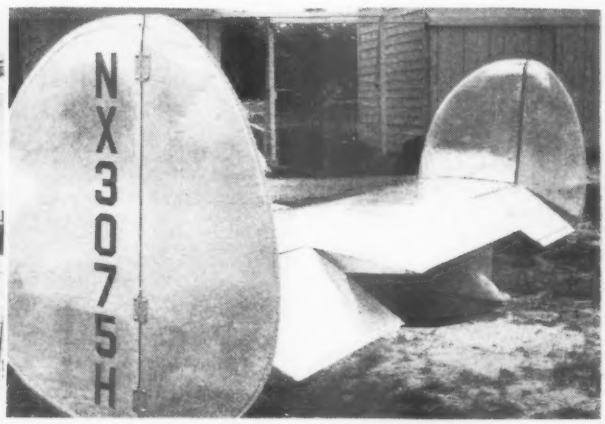
HAVE YOU SEEN?

continued

First post-war Fokker (F-25) is a Dutch four-seat business plane. Top speed is 140 m.p.h.

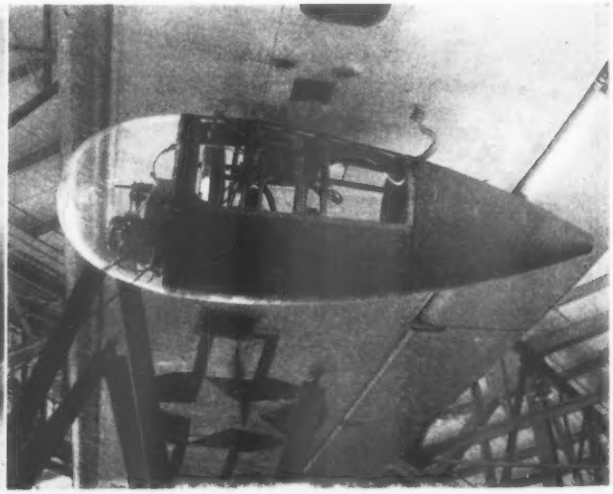
Knee-desk (above) clamps to pilot's knee and leaves both hands free. It is equipped with a protractor and mile scale for charts and maps.

New Ercoach interior will have refinements. Four-place, single-engine plane, slated for fall production, cruises at 130 m.p.h.

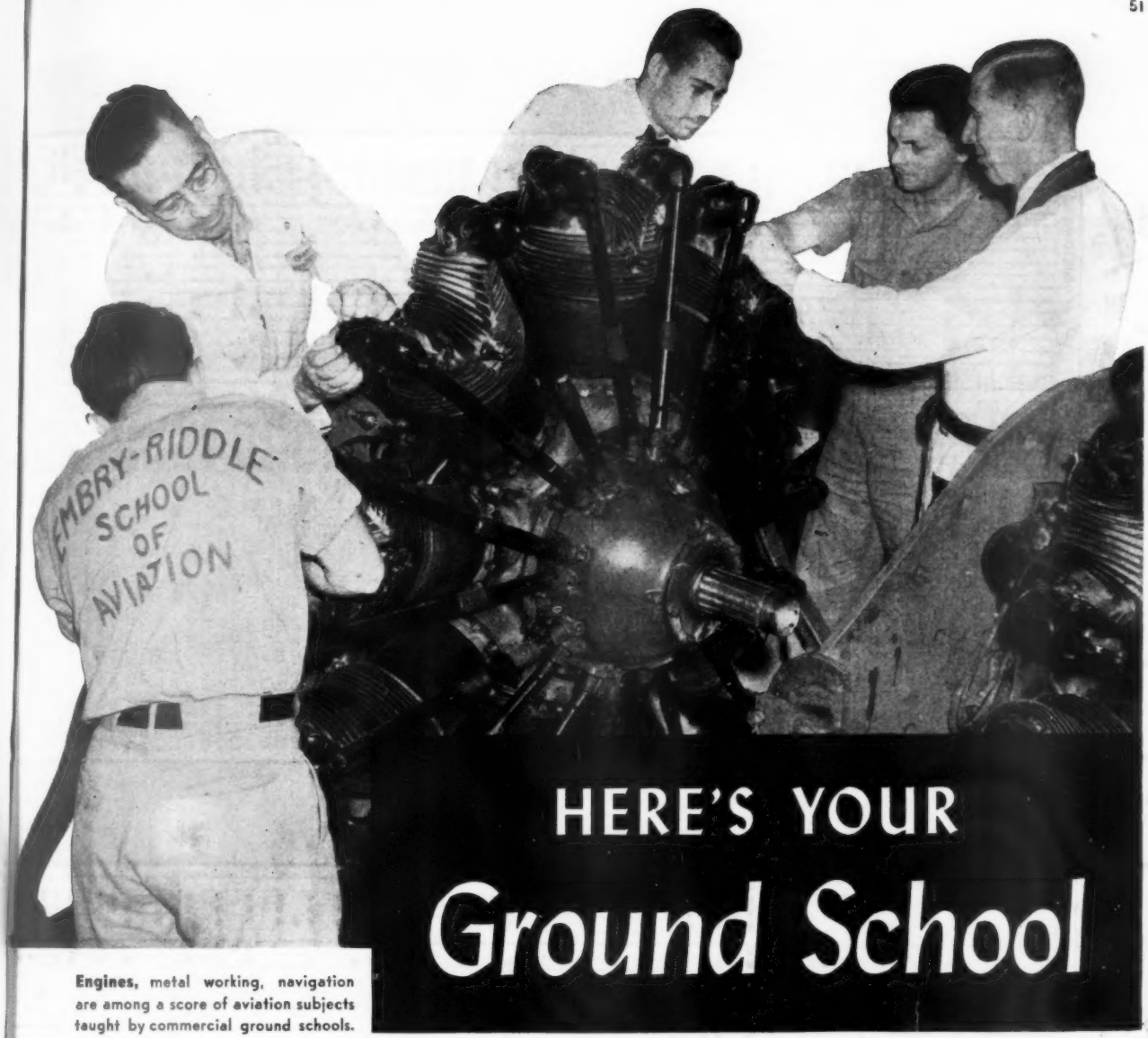


Experimental tail assembly on Ercoupe is intended to eliminate rough weather instability. Rudders are larger, elevator is split.

Army's L-17 is standard Navion with few minor changes. Eighty-three were bought for ground force liaison and reconnaissance.



Airborne searchlight installed on Navy Martin *Mariner* has high power on low voltage. It can be used for anti-submarine patrol.



Engines, metal working, navigation are among a score of aviation subjects taught by commercial ground schools.

HERE'S YOUR Ground School

Air-minded students can study aviation in hundreds of approved commercial ground schools.

THE crisp winds of autumn will soon be blowing thousands of aviation students back to school. Last year FLYING surveyed the 1,500-plus colleges and universities in the country to determine their aviation curricula. This year it has surveyed the 1,500-plus CAA-approved commercial aviation schools.

Despite some drastic preliminary pruning which eliminated all schools not offering basic ground courses, the 252 schools listed on the next two pages exceed in number the list of colleges and universities tabulated a year ago. In all, about three-fourths of the CAA-approved ground schools are accounted for in the listing. The tabulation does not include approved mechanic schools, which are listed separately by CAA region at the end of this article.

Flying is still the most popular course taught in the commercial aviation schools. The basic aviation courses of aircraft engines, air law and Civil Air Regulations, meteorology, and navigation are offered by most of them. On the other hand, nine of the schools listed here offer full engineering courses leading to degrees. Their courses range in length from 12 to 24 months.

On the flying side, 241 of the commercial schools offer courses leading to a private license, 213 offer courses leading to a commercial license, 132 to an instrument rating, 203 to an instructor's rating, while a handful offer courses for multi-engined rating, (*Continued on page* 78)

SEE CHART ON NEXT PAGES →

Commercial Ground School Courses, 1947

AVIATION GROUND SCHOOLS

(Arranged alphabetically by states)

ACADEMIC COURSES

Courses leading to a private license
Commercial license
Instrument rating
Instructor's rating
Aircraft mechanic's rating
Aircraft engine mechanic's rating
Other
Full aircraft engineering course
Aerodynamics
Air transportation
Aircraft construction
Aircraft design
Aircraft engines
Aircraft instruments
Aircraft materials
Aircraft mechanics
Aircraft propellers
Aircraft drafting
Aircraft physics
Air law and CAR
Aircraft construction and design
Analysis of aircraft structures
Flight instruction
Meteorology
Navigation
Radio construction
Other

G&G Airlines, Tucson, Ariz.	●	●	●																				●	●	●						
Avia. Serv., Pine Bluff, Ark.	●	●																													
Academy Aero., San Francisco, Cal.	●	●	●	●	●	●	●	1		●						●					●			●	●						
Aero. Tech. Inst., Oakland, Cal.							●		●																						
Aircraft Serv., Long Beach, Cal.	●	●	●	●				2	●						●						●		●	●	●						
Am. Sch. Air Instruments, Los Angeles, Cal.			●	●											●																
Am-Vet Flight Sch., Lancaster, Cal.	●	●	●	●																			●	●	●						
Banning Avia. Sch., Banning, Cal.	●														●	●					●		●	●	●						
B&J Flying Serv., Red Bluff, Cal.	●	●		●																	●		●	●	●						
Branstetter Serv., Sacramento, Cal.	●	●	●	●	●	●	●		●	●					●	●					●		●	●	●						
Cal-Aero Tech. Inst., Glendale, Cal.									●	●		●	●	●	●	●	●	●													
Cal-Brown Sch. Aero, Los Angeles, Cal.	●	●	●	●											●	●					●		●	●	●						
Cal. Sch. Aero., Inglewood, Cal.					●	●						●		●	●	●	●	●													
Coast Aero Sales, Oxnard, Cal.	●	●	●	●					●														●	●	●						
Concord Sch. Avia., Concord, Cal.	●	●	●	●				1															●	●	●						
Friedkin Sch. Aero., San Diego, Cal.			●	●				1															●	●	●						
Gibbs Flying Serv., San Diego, Cal.	●				●				●			●	●				●				●		●	●	●						
Lodi Flying Serv., Lodi, Cal.	●	●	●	●											●																
Martin Sch. Avia., Santa Ana, Cal.	●	●	●	●				3	●				●								●		●	●	●						4
Monterey Adult Sch., Monterey, Cal.	●								●				●																		5
Northrop Aero. Inst., Hawthorne, Cal.					●	●			●				●	●	●																
Palo Alto Eve. Sch., Palo Alto, Cal.	●	●			●	●			●				●								●										6
Palomar Aero. Inst., Escondido, Cal.	●								●				●																		
Pan-Am. Navig. Serv., Hollywood, Cal.	●	●	●	●				7	●				●	●	●	●					●		●	●	●						8
Peck Avia. Gr. Sch., Chico, Cal.	●	●	●	●																			●	●	●						
Phipps Fly Serv., El Monte, Cal.	●	●	●	●									●										●	●	●						
Precissi Fly Serv., Lodi, Cal.	●	●	●	●									●								●		●	●	●						
Rankin Avia. Ind., Tulare, Cal.	●	●	●	●																			●	●	●						
Riverside Fl. Acad., Riverside, Cal.	●	●	●	●																			●	●	●						
Sacramento Col. Aero., Sacramento, Cal.									●	●		●	●		●	●															
Scott Aero. Serv., Long Beach, Cal.	●	●	●	●				3	●				●								●		●	●	●						
Serv. Corp., Los Angeles, Cal.	●	●	●	●																			●	●	●						
Speer Fly. Serv., El Cajon, Cal.	●	●	●	●					●														●	●	●						
Taft Sch. Avia., Taft, Cal.	●	●	●	●									●										●	●	●						
Ventura Co. Flyers, Oxnard, Cal.	●	●	●	●																			●	●	●						
Weber Aero., Stockton, Cal.	●	●	●	●																			●	●	●						
Westaire Serv., Fairfield, Cal.	●	●	●	●																			●	●	●						10
Aero. Enterprise, Denver, Colo.	●	●	●	●	●	●	●						●			●							●	●	●						9
Berryhill Sales, Ft. Morgan, Colo.	●	●	●																				●	●	●						10
Clinton Avia. Co., Denver, Colo.	●	●	●																				●	●	●						
Eskridge Fl. Serv., Craig, Colo.	●	●	●	●																			●	●	●						
Fremont Air Serv., Canon City, Colo.	●	●		●				3		●													●	●	●						
Great Plains Avia. Co., Denver, Colo.	●	●	●	●	●	●	●						●										●	●	●						
Gregg Aircraft, Pueblo, Colo.	●	●	●	●																			●	●	●						
Kramer Fl. Serv., Alamosa, Colo.	●	●		●				3					●	●	●	●							●	●	●						
La Plata Fl. Serv., Durango, Colo.	●																						●	●	●						
Mt. States Avia., Denver, Colo.	●	●	●	●				3															●	●	●						
Pueblo Air Serv., Pueblo, Colo.	●	●	●	●	●	●	●																●	●	●						
Rocco Fl. Serv., Pueblo, Colo.	●	●		●						●													●	●	●						
Rocky Mt. Air Serv., Rifle, Colo.	●																						●	●	●						
Smoky Hill Air Serv., Eads, Colo.	●	●		●	●	●	●																●	●	●						
Weld Aircraft, Greeley, Colo.	●	●		●	●	●	●																●	●	●						
Delta Air Serv., Delta, Colo.	●	●		●	●	●	●																●	●	●						
Danbury Sch. Aero., Danbury, Conn.	●	●		●	●	●	●																●	●	●						
Plain Field Airways, Plain Field, Conn.	●	●		●	●	●	●	3															●	●	●						
Meriden Air Corp., Meriden, Conn.	●	●		●	●	●	●																●	●	●						
Aerosales, Rehoboth Beach, Del.	●	●		●	●	●	●																●	●	●						
Aerosales, Jacksonville, Fla.	●	●		●	●	●	●	3		●													●	●	●						
Airco, Tampa, Fla.	●	●		●	●	●	●	3															●	●	●						
Broward Avia., Ft. Lauderdale, Fla.	●	●		●	●	●	●	3		●													●	●	●						
Central Fl. Serv., Ocala, Fla.	●	●		●	●	●	●	3															●	●	●						

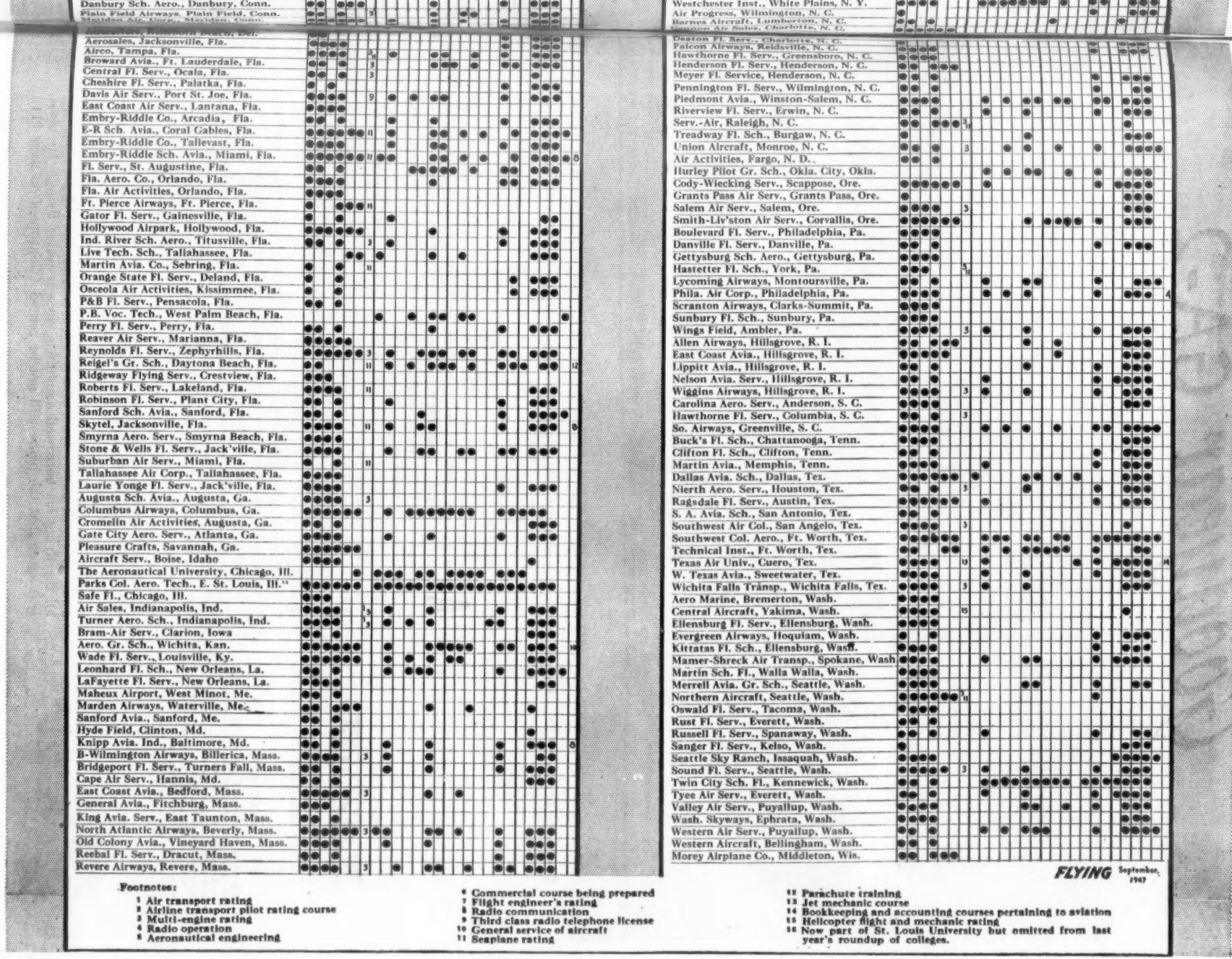
AVIATION GROUND SCHOOLS

(Arranged alphabetically by states)

ACADEMIC COURSES

Courses leading to a private license
Commercial license
Instrument rating
Instructor's rating
Aircraft mechanic's rating
Aircraft engine mechanic's rating
Other
Full aircraft engineering course
Aerodynamics
Air transportation
Aircraft construction
Aircraft design
Aircraft engines
Aircraft instruments
Aircraft materials
Aircraft mechanics
Aircraft propellers
Aircraft drafting
Aircraft physics
Air law and CAR
Aircraft construction and design
Analysis of aircraft structures
Flight instruction
Meteorology
Navigation
Radio construction
Other

Wiggins Airways, Westfield, Mass.	●	●	●																				●	●	●						
Albert Lea Fl. Serv., Albert Lea, Minn.	●	●	●																												
Aer-O-Tec, Pascagoula, Miss.	●	●	●																												
Forest Airpark, Forest, Miss.	●	●	●																												
Friendly Fl. Serv., Philadelphia, Miss.	●	●	●																												
Gates Fl. Serv., Vicksburg, Miss.	●																														
Hattiesburg Fl. Serv., Hattiesburg, Miss.	●	●																					●	●	●						
Key Bros. Fl. Serv., Meridian, Miss.	●	●	●																												
Klutts-Tincham Serv., Clarksdale, Miss.	●	●	●																												
Magnolia Airways, Laurel, Miss.	●	●	●																												
Mid-Delta Fl. Serv., Greenville, Miss.	●	●	●																												
Wright Fl. Serv., Oxford, Miss.	●	●	●																												
Avia. Foundation, St. Louis, Mo.	●	●	●																												
Branson Avia. Sch., Kirkwood, Mo.	●	●	●																												
North Am. Avia. Serv., Kirksville, Mo.	●	●	●																												
St. Louis Sch. Aero., St. Louis, Mo.	●	●	●																												
Remmert-Werner Air Serv., St. Louis, Mo.	●	●	●																												
Butte Aero. Sales, Butte, Mont.	●	●	●																												
Johnson Fl. Serv., Missoula, Mont.	●	●	●																												
Montana Skyways, Helena, Mont.	●	●	●																												
Skyway Fl. Serv., Great Falls, Mont.	●	●	●																												
Valley Flyers, Glasgow, Mont.	●	●	●																												
Sky Haven Fl. Serv., Las Vegas, Nev.	●	●	●																												
Bowman Fl. Serv., Keene, N. H.	●	●	●																												
Ferns Fl. Serv., Concord, N. H.	●	●	●																												
Goldsmith Fl. Serv., Nashua, N. H.	●	●																													
H&H Airways, Nashua, N. H.																															
Hampton Airport Co., Hampton, N. H.	●	●																													
Laconia Airways, Laconia, N. H.	●	●	●																												
Martin Fl. Serv., Concord, N. H.	●	●	●																												
Skyhaven, Gilford, N. H.	●	●	●																												
Volpe Fl. Serv., Claremont, N. H.	●	●	●																												
Avia. Sch., Blairstown, N. J.	●	●	●																												
Jersey Airways, Belmar, N. J.	●	●	●																												
Martin Creek Air Serv., Belvidere, N. J.	●	●	●																												
Newark Avia. Center, Newark, N. J.	●	●	●																												
Ruscoe Fl. Serv., Iselin, N. J.	●	●	●																												
Thor Solberg Fl. Sch., Readington, N. J.	●	●	●																												
Airport Operators, Troy, N. Y.	●	●	●																												
Auburn Fl. Sch., Auburn, N. Y.	●	●	●																												
Barrie Fl. Sch., Lockport, N. Y.	●	●	●																												
Buffalo Airpark, Gardenville, N. Y.	●	●	●																												
Eastern Air Navig. Serv., New York, N. Y.																															
Cape Aircraft, Glen Falls, N. Y.	●	●	●																												
Elarco Sch. Fl., Horseheads, N. Y.	●	●	●																												
Finger Lakes Fl. Serv., Seneca Falls, N. Y.	●	●	●																												
General Air Serv., Endicott, N. Y.	●	●	●																												
Hamburg Airpark Sch., Hamburg, N. Y.	●	●	●																												
Hyland Sch. Aero., Henrietta, N. Y.	●	●	●																												
No. Am. Airport Corp., White Plains, N. Y.	●	●	●																												
Pryor Fl. Sch., Hormell, N. Y.	●	●	●																												
Roosevelt Avia. Sch., Mineola, N. Y.	●	●	●																												
Ross Fl. Serv., Pulaski, N. Y.	●	●	●																												
Westchester Inst., White Plains, N. Y.	●	●	●																												
Air Progress, Wilmington, N. C.	●	●	●																												
Barnes Aircraft, Lumberton, N. C.	●	●	●																												
Cannon Air Sales, Charlotte, N. C.	●	●	●																												
Deston Fl. Serv., Charlotte, N. C.	●	●	●																												
Falcon Airways, Reidsville, N. C.	●	●	●																												
Hawthorne Fl. Serv., Greensboro, N. C.	●	●	●																												
Henderson Fl. Serv., Henderson, N. C.	●	●	●																												
Meyer Fl. Service, Henderson, N. C.	●	●	●																												
Pennington Fl. Serv., Wilmington, N. C.	●	●	●																												



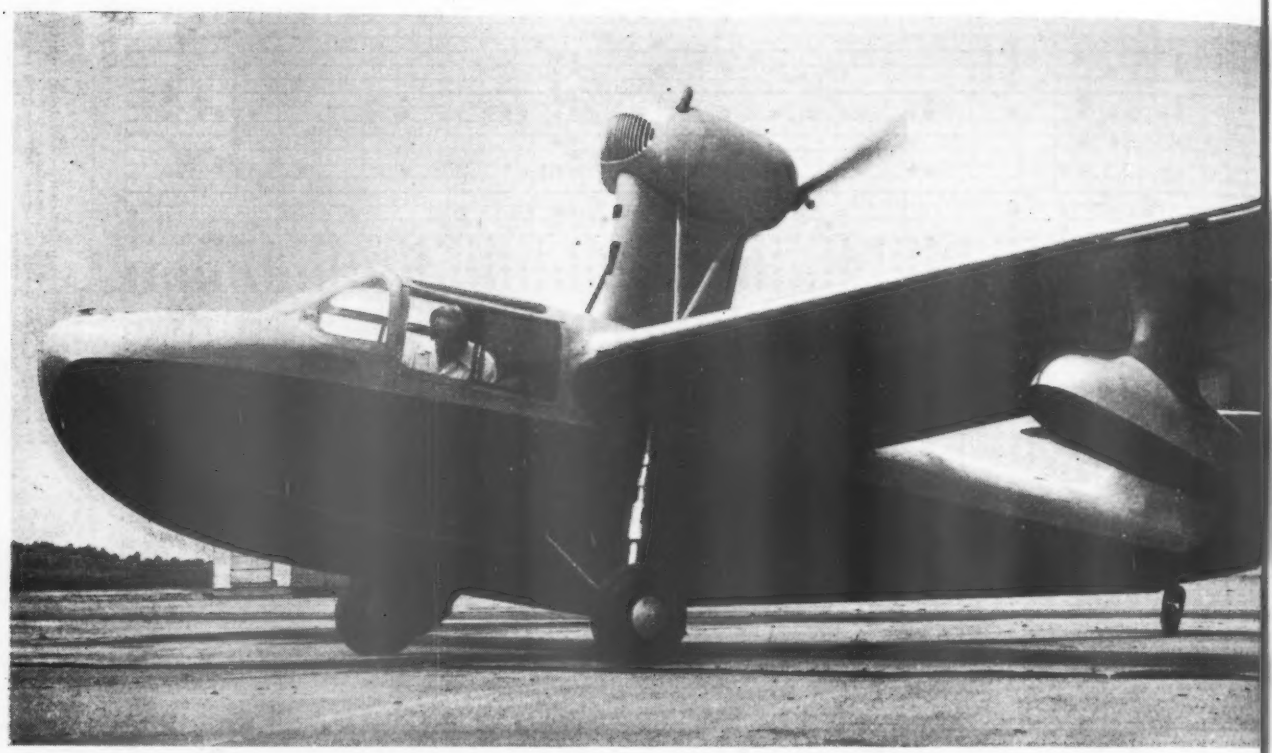
Danbury Sch. Aero., Danbury, Conn.
Plain Field Airways, Plain Field, Conn.
Meriden Air Cargo, Meriden, Conn.
Dover Aero. Sch., Rehoboth Beach, Del.
Aerosales, Jacksonville, Fla.
Airco, Tampa, Fla.
Broward Avia., Ft. Lauderdale, Fla.
Central Fl. Serv., Ocala, Fla.
Cheshire Fl. Serv., Palatka, Fla.
Davis Air Serv., Port St. Joe, Fla.
East Coast Air Serv., Lantana, Fla.
Embry-Riddle Co., Arcadia, Fla.
E-R Sch. Avia., Coral Gables, Fla.
Embry-Riddle Co., Tallevast, Fla.
Embry-Riddle Sch. Avia., Miami, Fla.
Fl. Serv., St. Augustine, Fla.
Fla. Aero. Co., Orlando, Fla.
Fla. Air Activities, Orlando, Fla.
Ft. Pierce Airways, Ft. Pierce, Fla.
Gator Fl. Serv., Gainesville, Fla.
Hollywood Airpark, Hollywood, Fla.
Ind. River Sch. Aero., Titusville, Fla.
Live Tech. Sch., Tallahassee, Fla.
Martin Avia. Co., Sebring, Fla.
Orange State Fl. Serv., Deland, Fla.
Osceola Air Activities, Kissimmee, Fla.
P&B Fl. Serv., Pensacola, Fla.
P.B. Voc. Tech., West Palm Beach, Fla.
Perry Fl. Serv., Perry, Fla.
Reaver Air Serv., Marianna, Fla.
Reynolds Fl. Serv., Zephyrhills, Fla.
Reigel's Gr. Sch., Daytona Beach, Fla.
Ridgeway Flying Serv., Crestview, Fla.
Roberts Fl. Serv., Lakeland, Fla.
Robinson Fl. Serv., Plant City, Fla.
Sanford Sch. Avia., Sanford, Fla.
Skytel, Jacksonville, Fla.
Smyrna Aero. Serv., Smyrna Beach, Fla.
Stone & Wells Fl. Serv., Jack'ville, Fla.
Suburban Air Serv., Miami, Fla.
Tallahassee Air Corp., Tallahassee, Fla.
Laurie Yonge Fl. Serv., Jack'ville, Fla.
Augusta Sch. Avia., Augusta, Ga.
Columbus Airways, Columbus, Ga.
Cromelin Air Activities, Augusta, Ga.
Gate City Aero. Serv., Atlanta, Ga.
Pleasure Crafts, Savannah, Ga.
Aircraft Serv., Boise, Idaho
The Aeronautical University, Chicago, Ill.
Parks Col. Aero. Tech., E. St. Louis, Ill.[16]
Safe Fl., Chicago, Ill.
Air Sales, Indianapolis, Ind.
Turner Aero. Sch., Indianapolis, Ind.
Bram-Air Serv., Clarion, Iowa
Aero. Gr. Sch., Wichita, Kan.
Wade Fl. Serv., Louisville, Ky.
Leonhard Fl. Sch., New Orleans, La.
LaFayette Fl. Serv., New Orleans, La.
Maheux Airport, West Minot, Me.
Marden Airways, Waterville, Me.
Sanford Avia., Sanford, Me.
Hyde Field, Clinton, Md.
Knipp Avia. Ind., Baltimore, Md.
B-Wilmington Airways, Billerica, Mass.
Bridgeport Fl. Serv., Turners Fall, Mass.
Cape Air Serv., Hannis, Md.
East Coast Avia., Bedford, Mass.
General Avia., Fitchburg, Mass.
King Avia. Serv., East Taunton, Mass.
North Atlantic Airways, Beverly, Mass.
Old Colony Avia., Vineyard Haven, Mass.
Reebal Fl. Serv., Dracut, Mass.
Revere Airways, Revere, Mass.

Westchester Inst., White Plains, N. Y.
Air Progress, Wilmington, N. C.
Barnes Aircraft, Lumberton, N. C.
Gregson Air Sales, Charlotte, N. C.
Deaton Fl. Serv., Charlotte, N. C.
Falcon Airways, Reidsville, N. C.
Hawthorne Fl. Serv., Greensboro, N. C.
Henderson Fl. Serv., Henderson, N. C.
Meyer Fl. Service, Henderson, N. C.
Pennington Fl. Serv., Wilmington, N. C.
Piedmont Avia., Winston-Salem, N. C.
Riverview Fl. Serv., Erwin, N. C.
Serv.-Air, Raleigh, N. C.
Treadway Fl. Sch., Burgaw, N. C.
Union Aircraft, Monroe, N. C.
Air Activities, Fargo, N. D.
Hurley Pilot Gr. Sch., Okla. City, Okla.
Cody-Wiecking Serv., Scappose, Ore.
Grants Pass Air Serv., Grants Pass, Ore.
Salem Air Serv., Salem, Ore.
Smith-Liv'ston Air Serv., Corvallis, Ore.
Boulevard Fl. Serv., Philadelphia, Pa.
Danville Fl. Serv., Danville, Pa.
Gettysburg Sch. Aero., Gettysburg, Pa.
Hastetter Fl. Sch., York, Pa.
Lycoming Airways, Montoursville, Pa.
Phila. Air Corp., Philadelphia, Pa.
Scranton Airways, Clarks-Summit, Pa.
Sunbury Fl. Sch., Sunbury, Pa.
Wings Field, Ambler, Pa.
Allen Airways, Hillsgrove, R. I.
East Coast Avia., Hillsgrove, R. I.
Lippitt Avia., Hillsgrove, R. I.
Nelson Avia. Serv., Hillsgrove, R. I.
Wiggins Airways, Hillsgrove, R. I.
Carolina Aero. Serv., Anderson, S. C.
Hawthorne Fl. Serv., Columbia, S. C.
So. Airways, Greenville, S. C.
Buck's Fl. Sch., Chattanooga, Tenn.
Clifton Fl. Sch., Clifton, Tenn.
Martin Avia., Memphis, Tenn.
Dallas Avia. Sch., Dallas, Tex.
Nierth Aero. Serv., Houston, Tex.
Ragsdale Fl. Serv., Austin, Tex.
S. A. Avia. Sch., San Antonio, Tex.
Southwest Air Col., San Angelo, Tex.
Southwest Col. Aero., Ft. Worth, Tex.
Technical Inst., Ft. Worth, Tex.
Texas Air Univ., Cuero, Tex.
W. Texas Avia., Sweetwater, Tex.
Wichita Falls Transp., Wichita Falls, Tex.
Aero Marine, Bremerton, Wash.
Central Aircraft, Yakima, Wash.
Ellensburg Fl. Serv., Ellensburg, Wash.
Evergreen Airways, Hoquiam, Wash.
Kittatas Fl. Sch., Ellensburg, Wash.
Mamer-Shreck Air Transp., Spokane, Wash.
Martin Sch. Fl., Walla Walla, Wash.
Merrell Avia. Gr. Sch., Seattle, Wash.
Northern Aircraft, Seattle, Wash.
Oswald Fl. Serv., Tacoma, Wash.
Rust Fl. Serv., Everett, Wash.
Russell Fl. Serv., Spanaway, Wash.
Sanger Fl. Serv., Kelso, Wash.
Seattle Sky Ranch, Issaquah, Wash.
Sound Fl. Serv., Seattle, Wash.
Twin City Sch. Fl., Kennewick, Wash.
Tyee Air Serv., Everett, Wash.
Valley Air Serv., Puyallup, Wash.
Wash. Skyways, Ephrata, Wash.
Western Air Serv., Puyallup, Wash.
Western Aircraft, Bellingham, Wash.
Morey Airplane Co., Middleton, Wis.

Footnotes:

1 Air transport rating
2 Airline transport pilot rating course
3 Multi-engine rating
4 Radio operation
5 Aeronautical engineering
6 Commercial course being prepared
7 Flight engineer's rating
8 Radio communication
9 Third class radio telephone license
10 General service of aircraft
11 Seaplane rating
12 Parachute training
13 Jet mechanic course
14 Bookkeeping and accounting courses pertaining to aviation
15 Helicopter flight and mechanic rating
16 Now part of St. Louis University but omitted from last year's roundup of colleges.

THE *Goodyear* GA-2



Landing gear retracts electrically into wheel wells in wing root. Wing tip floats are large and rugged. Note slots in wing.

FLYING's CHECK PILOT

EDITOR'S NOTE

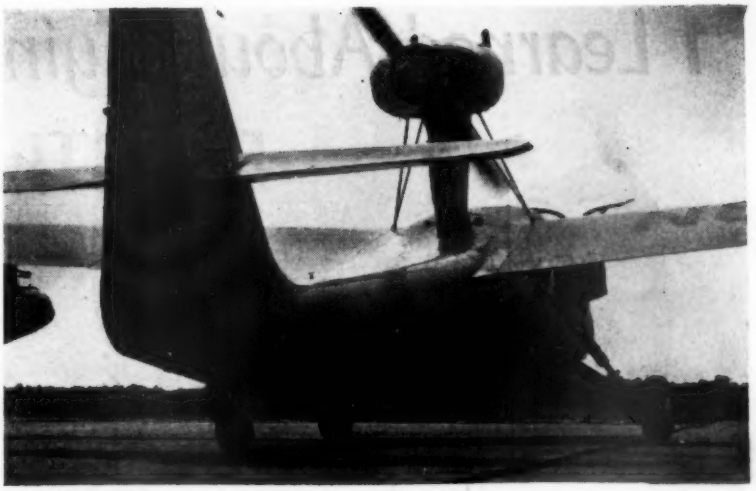
This series of articles is planned to help the pilot and prospective plane owner evaluate aircraft now on the market. Only aircraft holding a CAA Approved Type Certificate are flown. The author is not a professional test pilot. He evaluates each aircraft through the eyes of an average private pilot who flies an airplane either for business or sport.

ANY amphibian is a pretty painful compromise between an airplane and a boat. But as compromises go, Goodyear engineers have done a fine job. The *Duck*, as Goodyear employes have unofficially dubbed this three-place amphibian, is as nice an all-around airplane as you'll want.

This article is being written despite the fact that you couldn't buy one of these airplanes if you personally took a hatful of money to Akron. Yet the GA-2 is not an untried experimental airplane. It got its Approved Type Certificate last December and, so far as the customer is concerned, could very well go into production tomorrow.

Only reason this airplane is not in production is because officials of the Goodyear Aircraft Corporation (subsidiary of Goodyear Tire and Rubber Co.) are deliberately holding it back. In the near future, 15 GA-2's will be built for a novel experimental program. Ten will be distributed to capable operators throughout the country—operators who can do the most typical job of using a small amphibian. These airplanes will be out on loan for from six weeks to three months, depending on each operator's circumstances. They will be distributed something like this: two to the west coast, one to Chicago, one to Minneapolis, three along the Gulf of Mexico, and three on the east coast. The other five will stay at the factory.

Each operator will have to sign a detailed agreement with Goodyear. He will agree, for instance, to see to it that 50 per cent of all the flying his borrowed amphibian does is water flying. He also will agree that the plane will not be rented (*Continued on page* 91)



Franklin engine is mounted high off the hull, keeping the propeller out of water spray. Goodyear engineers designed special cooling fan (behind prop) for the engine. Tail wheel is retractable. Water rudder retracts into a slot in the plane's main rudder.

Excellent visibility is had in nearly all directions. Overhead windows will be colored to cut down sun's heat. Color scheme: blue and yellow.

I Learned About Flying From That! NO. 94

By Maj.
ROBERT R. WEIR

Everything went wrong during terror-filled South Polar mission.

'Dream Crew' stands before R4D. From l. to r. are Lieut. A. E. Stein, Lieut. Claude T. Bromley, author, Master Sgt. Andrew Van Mincey, and Capt. Raymond J. Butters.

I HAVE been terrified for only two hours of the more than 2,300 I have flown since joining the Marines in 1941. But those two hours over the South Polar seas were frightening enough to make up for the remaining 2,298 that were free from fear.

The story of the longest two hours of my life began on the USS *Philippine Sea* January 30, 1947. Aboard were six twin-engined R4D transports in which we were to fly some 600 miles toward the South Pole, landing on the antarctic ice cap at the Little America camp, which was just then nearing completion.

Our skipper, Comdr. William H. Hawks, USN, elected to take off first with Rear Adm. Richard E. Byrd, USN (retired). They were followed by four other planes. I was to bring up the rear to keep track of any stragglers.

Take-offs were without incident, each plane using four JATO units for extra initial power. Some of us, including myself, weren't accustomed to a runway that moved forward at a speed of some 30 knots. We were airborne before we knew it.

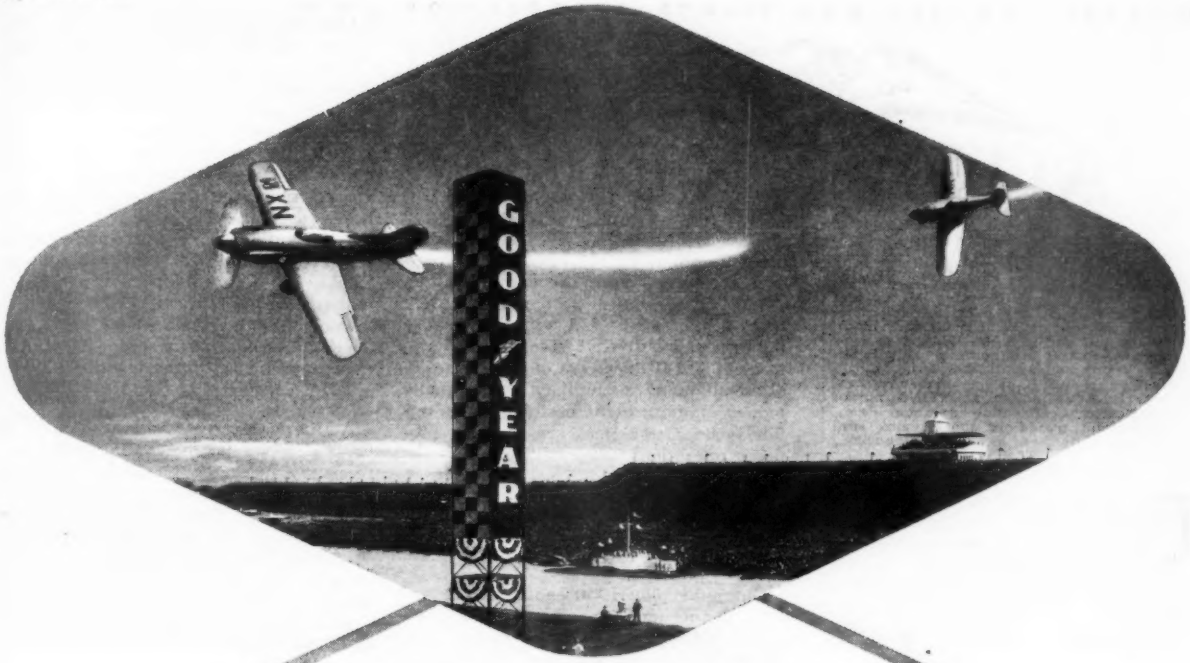
Since this was a jackpot flight on which depended to a great extent the success of the South Pole expedition, we had gone to great pains to see that everything was in excellent shape. I personally had checked and re-checked the engines, instruments and—as well as humanly possible considering the circumstances—the radio equipment.

For contact with planes enroute, we had a high frequency command set with clear reception but a short range—300 miles. Then we had a long range high frequency liaison set for communication with ships along the route. We also carried two sets on low frequency bands for direction-finding hook-up with radio compasses. And finally we had an emergency hand crank set, the old-fashioned "Gibson Girl."

As we were to be in touch with radios located on the mother ship and in other planes, it was impossible to give our equipment a prior check for range, but we began to work it as soon as we were airborne. Master Sgt. Andrew Van Mincey of Wayside, Ga., came up to the cockpit and reported that everything was okay.

I had a dream crew. The only difference between me and the two other pilots aboard was that of rank. Capt. Raymond J. Butters of Dorchester, Mass., had as much flying time as I and was an ace at navigating. So was Lieut. Claude T. Bromley of Mobile, Ala. To call them co-pilots would be an understatement. We were an equal-ranking team when it came to flying and were all schooled in navigating long Pacific miles and hitting pocket-handkerchief atolls on the nose. We were even lucky—as it turned out—in our passenger, Lieut. Allen E. Stein, a Navy photographer.

Though we took off in the (*Continued on page* 93)



In the interest of progress

To encourage public interest in the development of light aircraft, to promote progress in their engineering and to stimulate research in new designs, the Goodyear Trophy Race with $25,000 in prizes is being inaugurated at the National Air Races in Cleveland on August 30, 31 and September 1. Goodyear, Aviation Products Division, Akron 16, Ohio; Los Angeles 54, California.

MORE AIRCRAFT LAND ON GOODYEAR TIRES THAN ON ANY OTHER KIND

AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AOPA NEWS

Aircraft Owners and Pilots Association is a service organization for the private pilot or aircraft owner. AOPA's full time staff is devoted to helping the individual pilot. Its aim is: "To make flying more useful, less expensive, safer and more fun."
Headquarters are: 1319 F Street N.W., Washington 4, D. C. Members also receive a special AOPA edition of FLYING, newsletters and confidential aviation data. Opinions expressed in this column are not necessarily those of FLYING Magazine.

THE greatest travel season in lightplane history is underway, despite talk of depression in the private aviation field. That's the opinion of J. B. Hartranft, Jr., general manager of AOPA, who just completed a preliminary study of weekend and vacation flying among AOPA members.

Hartranft estimated that by summer's end, AOPA-sponsored flights alone will total more than 400, and that more than 10,000 private vacation flights will probably be made. The so-called "breakfast flights," having 10 to 300 planes each, will cover an estimated 10,000,000 passenger miles before the summer season ends, he declared.

Total expenditures by vacationing lightplane pilots in gas, oil, food, housing and entertainment will near the $25,000,000 mark for the 1947 season, despite a slow start due to heavy rains, the AOPA official believes.

Washington headquarters cites as an example the weekend flight held last month by 600 New England pilots flying 237 aircraft. They flew to Nantucket, Mass., and spent an estimated $40,000 for food, housing and entertainment. Several pilots came as far as 1,000 miles.

Hartranft predicted that the 1948 season will "probably double this year's record" and reach a new all-time high.

EMERGENCY AIR STRIPS

Two emergency landing strips have been completed by members of the Santa Fe, N.M., AOPA unit, according to Bob Barnes, unit chairman.

Located at the Calvin Ranch, 15 miles south of Santa Fe, the strips are 2,500 and 2,200 feet long. Barnes said the unit hopes to complete several emergency landing areas in the near future.

G.I. FLIGHT TRAINING

High Veterans' Administration officials in Washington say that prices will remain the same when V.A. contracts are renegotiated, but AOPA members have reported several cases where contracts call for higher rates.

Hundreds of critical letters and reports have been received by AOPA, claiming that (1) non-G.I. students are being ignored, (2) transient pilots and owners have been forced into the background by the G.I. program, (3) operators have a "we don't need your business" attitude, (4) G.I. grads buy little flying time; few new airplanes, (5) G.I. enrollments are taking a sharp dive, (6) too many operators depend 100 per cent on the program, although many claim they cannot make money on its present basis, and (7) unfair business practices are creeping into many operations.

CIVILIAN G.I. BILL

A civilian "G.I. Bill of Rights" was announced recently at White Cloud Airport, Greenwood, Ind., by Ken Garriott, AOPA member and airport manager.

Garriott's plan is intended as the answer to the question, "What will happen when G.I. flying stops?" Students at White Cloud Airport are allowed 47 weeks to pay for 40-hours of flying time.

If an applicant's credit rating is satisfactory, he makes a down payment and starts flying. At the end of 10 hours, or when he solos, the student makes another payment. From this point he continues to fly as often as he wishes (up to 10 hours per week) and makes small weekly payments.

By "flat-rating" flying, Garriott said his books showed a minimum of 37 per cent more new students enrolled the first week. His roster, formerly top-heavy with G.I. students, is now equally balanced.

REGULATION FIGHT

A sharp cleavage has materialized in Washington between airline and non-carrier groups. The latest break came during prolonged conferences held by a joint CAA-CAB committee which is considering revision of Part 60, Air Traffic Rules.

Carriers are demanding restrictive rules which, according to non-carrier groups, will effectively curtail private flying.

Aviation authorities agree that no section has provoked more comment, or more effectively divided the aviation industry than the proposed Air Traffic Rules revision.

The regulation has been published in the Federal Register, and will receive CAB action this month. AOPA members will receive reprints of new Part 60 following CAB's action. The regulation's effective date, formerly set for September, may be delayed until early 1948.

OVERCHARGE

AOPA's recent overcharge survey reveals some pilots have been charged four times the average price for installation of stall warning indicators.

Members purchasing Safe Flight Indicators under a special AOPA plan received a questionnaire which, when returned, showed excessive overcharges made by several airports.

Average price quoted by airports was $8. The highest charge, at this writing, was $32.

This is the first time a study has been made of comparative charges for a standard installation or repair job. AOPA officials indicated similar surveys will be made in the near future.

AIRPORT AWARDS

Airport award certificates will be presented to 447 airports rated above average by AOPA pilots in a recent airport survey (see AOPA News, July issue of FLYING).

Designed for display in the rated airport's operations office or pilot's lounge, the certificates will be issued quarterly or semi-annually.

AOPA members have been urged to continue sending airport rating cards to National Headquarters. END

AOPA officers and Canadians on Nantucket flight are (l to r), J. B. Hartranft, Jr., Lloyd R. Wilson, Jr., of AOPA; Mrs. J. Plummer Lyon and Garth Magwood of Toronto.

FLIGHT CUE FOR THE AIR-MINDED...

AERONCA CHIEF—This new 2-place side-by-side plane features "safety" swing door, low cowling line for wide visibility.

AERONCA endorses Socony-Vacuum Aviation Products

• A leading contender among low-priced personal planes, Aeronca's new "Chief" sets high standards in plane construction. For Aeronca recognizes that safe flying depends on sound design, fine materials, skilled workmanship.

It depends, too, on proper protection. And that's why this famous builder endorses high-quality Socony-Vacuum Aviation Products.

Get Socony-Vacuum's special aviation greases, instrument and hydraulic oils for your plane. And try famous Mobiloil Aero – Mobilgas Aircraft for *Flying Horsepower*, at the Sign of Friendly Service!

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SERVES EVERY PETROLEUM NEED OF AMERICA'S AIR INDUSTRY!

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THE LIBRARY

THE AIRCRAFT YEARBOOK FOR 1947, by Howard Mingos. Published by Lancier Publishers, Inc., 10 Rockefeller Plaza, New York, N. Y. 511 pages. Price $6.

This is the 29th annual edition of this old standby. With hardly any perceptible change, the 29th edition looks like the 19th. The latest one is thicker, of course—but it's also a little more expensive.

This publication follows the identical pattern it established 29 years ago. There is a chapter on each of the customary phases of aviation "Technical Progress and Problems," "The Army Air Forces," "Naval Aviation," "Air Transportation," "Private and Non-Scheduled Flying," and so on. The lengthy roundup has been painstakingly done; the facts and figures themselves make this a "must" reference book.

There are plenty of photographs, but they are scattered around more to relieve the monotony than anything else. Transport aircraft are pictured in the chapter on air transport, Navy planes are shown in the Navy chapter. But that's where the pattern ends. If you like airplane pictures, this book has plenty of them. But they are not too well done; bad plates mostly. And, of course, $6 is a little steep for a miscellaneous collection of pictures and statistics.

And as I've said so many times before, what good is such a book without a first-class index? You'll have a hard time finding much of the valuable information in this volume.

—MAX KARANT

AIR FORCE DIARY, edited by James H. Straubel, Colonel, Air Force Reserve. Published by Simon and Schuster, Rockefeller Center, 1230 Sixth Ave., New York 20, N. Y., in 1947. 492 pages. Price $3.75.

Col. James H. Straubel, wartime editor of *Air Force* magazine, has an ax to grind. That's this reviewer's opinion. And that, partially, is what makes his collection of stories from the official Air Forces magazine stand head-and-shoulders above the usual anthology.

Straubel's thesis, which threads through the final pages of *Air Force Diary,* is that ". . . a weak and struggling peacetime corps, expanded by war into the largest air force ever conceived, [has] been reduced by peace to near impotency once again." He insists further that the "best testimonial to the importance of air power in our national life is simply the plain unvarnished truth."

The ex-military editor shuffled through the pages of his magazine and selected 111 outstanding contributions by the men who fought the air war. His 10 sections (One Man's War, The Missions, Blisters and Water Wings, From the Ground Up, Super Stuff, World Trolley, Shoptalk, Three Years Over Europe, Air War in the Pacific, and Everyman's Peace) weave into a coherent though anecdotal form the story of the air war as seen by flyers themselves on all the fronts.

As Colonel Straubel points out, World War II was "the end of the era in which man was the major participant in aerial warfare." The future belongs to "remote-controlled, radar-guided, jet-propelled, crewless aircraft." *Air Force Diary,* especially because it was written by the flying men themselves, stands as a testimonial to these fighters.

But even though "interpretive appraisal of the air war is confined to two chapters, technical material to one article summarizing wartime developments," the book has no dearth of thought-provoking information.

Particularly to the point is the 1945 call to arms by General of the Army H. H. Arnold. His brief chapter, concluding the book, cites three major requirements for the future:

1. ". . . An adequate, well-trained, fully-equipped force of whatever kind is necessary to use the new weapons and devices properly."
2. "A system of universal military training which can back up this force."
3. "Most important of all an ably staffed, adequately financed and properly equipped research and development program."

—CHARLES L. BLACK

FLYING

"Marga-RET!"

SHORT VIEWS

FLYING FARMERS SUPPLEMENTARY AIRFIELD GUIDE, compiled by Country Gentleman Magazine, Independence Square, Philadelphia 5, Pa., in 1947. 14 pages. Price 25 cents.

Country Gentleman has compiled a list of over 500 airfields and landing strips in 30 states as a supplement to the Federally designated airports listed in the Airman's Guide. Though this is only a partial list of airports not listed in the Airman's Guide, it should be useful to farmers and cross-country flyers. Data given includes distance from nearest town, altitude, direction and length of strips, surface and other pertinent information.

FUNDAMENTALS OF GROUND INSTRUCTING, by M. G. Potts. Mimeographed by author and sold by Groton Flying Service, Trumbull Airport, Groton, Conn. Price $1.50.

Many applicants for a ground instructor's rating successfully pass examinations concerning their knowledge of the subject matter but have difficulty with that on the fundamentals of instruction. The author has prepared this manual to give a non-technical but comprehensive background for those who wish to instruct student pilots but have no teachers' certificates or formal training in educational psychology. END

Floatplanes Bring Sportsmen's Paradise within Easy Reach . . .

Tedious overland portages are a thing of the past in the rugged Allagash country of Maine, where Milton Hall operates a string of wilderness fishing camps. Stinson Voyagers on Edo Model 2425 floats operated by this progressive flying guide bring some of the nation's best fishing within easy reach of sportsmen. Based at Portage, his floatplane fleet covers 1600 square miles of virgin territory in which his Bradford Recreation Camps are located, all on wilderness lakes.

"My floatplanes take sportsmen to where the big ones are biting best in a matter of minutes," says this veteran woodsman. "I've set up a half-dozen camps at widely-separated lakes and sportsmen can get in a wide variety of fishing in a limited time."

Resort operators and outdoorsmen can profit by Milton Hall's example. Personal planes can be purchased new with floats, or they can be installed on landplanes already in use. See your aircraft dealer or the nearest seaplane base operator for details.

Milton Hall's pilot-guide flies sportsmen into one of Northern Maine's remote lakes, helps them set up the knockdown Linkboat which is carried in the plane's baggage compartment, and turns them loose on some of the grandest fishing in the country.

WRITE for Edo's two free books, "Air Harbors Data Book" and "Float Flying." See how Edo floats mean new utility. Learn how to set up a simple base — lakes and rivers provide ready-made airports.

Edo
FLOATS
FOR REAL FUN IN FLYING

EDO AIRCRAFT CORPORATION
110 Second Avenue, College Point, Long Island, N. Y.

Alaska

(*Continued from page* 30)

of flying last year on 60 different calls hunting pilots who were forced down and lost. Why we'd be in the air all the time hunting little lost birds if they came up here in any number."

But before you get discouraged read the rest of the tale.

Several others put in with remarks that Burleigh was right, all right, but Alaska is certainly a beautiful place for flying. Now, you take the Kenai peninsula . . . or the southeast coast . . . or a trip through Rainy Pass or Ptarmigan Valley . . .

Burleigh cut in with "Give me that stuff around Mt. McKinley. There isn't a spot on earth that compares with that for beauty. And there's no earthly reason for getting lost around there."

First thing you know the conference was unanimously in favor of singing the praises of a flying trip to Alaska, and before the evening was ended nobody present could understand why anybody in his right mind would want to fly from the U. S. to anywhere else but Alaska. So you'll be welcome, and every member of the flying fraternity will be at your service with a North Country mixture of advice and tall tales. Sift them carefully, so you can enjoy the tales and live to appreciate the advice.

Things are not nearly as rugged aeronautically in Alaska as they were even as late as 1941. The war produced a lot of flying aids and ground facilities. Unfortunately, it did not lay down any surplus hotels and cafeterias at spots where you will wish for them, and this lack is likely to be your No. 1 problem. As far as flying is concerned, if you're a good boy and obey the rules, you will cut down on your own problems. If you are also a careful man in maintenance of your equipment you'll avoid problems completely.

To get the rules and requirements out of the way at first, here are the main ones: you must file a flight plan on every flight, whether it be QFH or IFR. You must carry emergency equipment supplies in your plane. This is the law. You should have two-way radio. If you are forced down, you must follow Alaska's rules for little lost sheep if you want to get home alive, and cooperate with the pilots who are certain to come looking for you. All these things are written down, and any CAA official will hand them to you. If you do not read them and heed them, you'll be sorry. That is why this article started on a discouraging and inhospitable note.

Small personal planes must go to Alaska via the inside route, starting at Seattle or Grand Forks, and keeping the Alcan highway under the wings. Here are the hops to be made, the fields and the accommodations available.

At Great Falls, Mont., clear your flight with U. S. Customs. File a flight plan to Lethbridge, Canada, (165 miles) and check in there with Canadian Customs. Clear then to Edmonton, where you must check in again with Canadian Customs, and clear your prospective flight with the Royal Canadian Air Force.

The RCAF will check your emergency equipment—and they require sleeping bag, flashlight, pocket compass, axe, matches in waterproof container, insect lotion, rifle with ammunition and fishing tackle. This is also required in Alaska by law, and should be adequate as to each item for all aboard the plane. It is wise, of course, to start from home with emergency equipment aboard, and not have to buy it at higher prices en route.

You get weather data of course, at all Canadian stops, and from Edmonton your route and distances are as follows:

Grand Prairie, 240 miles; Ft. St. John, 100 miles; Ft. Nelson, 190 miles; Watson Lake, 235 miles; Whitehorse, 215 miles; Northway, Alaska, 270 miles; and to Fairbanks, where you clear again with U. S. Customs.

At Whitehorse, last Canadian point on the route, clear the Canadian Customs. At Northway, fuel is available from surplus Army stocks, but this service is only a courtesy for transient travelers, and you must "shammy" your own gas.

Plan your trip so as to contact customs men between 8:00 a.m. and 5:00 p.m. and not on Saturdays or Sundays. Working government hours, they will be obliged to charge you extra for overtime hours.

Good reading a night or two before you take off, even along the highway, and certainly before entering Alaska, is a new booklet called "Terrain Flying" prepared by the CAA. It is a compilation of the advice of many experienced Alaska pilots for the newcomer. It might well be a part of your plane's equipment.

From May pretty far into September is a good time for flying in Alaska. You will have long days. In the northern cities like Nome and Kotzebue, you will watch the sun set 12:30 p.m. and rise at 1:15 a.m. Flying around Anchorage or Fairbanks, you will be able to read your charts without cabin lights as late as 10 or 11 o'clock at night. Many Alaskan pilots extol the beauties of winter flying up there, but they admit it's no picnic for just any pilot.

If it is just a sight-seeing holiday, summer, of course, is recommended. August is perfect. If fishing is to be included, the season extends from June 1 to Sept. 30.

Hunting seasons for big game vary in different parts of Alaska. Serious hunters should determine the exact seasons for the areas in which they want to hunt before taking off. The Federal Register for June 4 has the complete season for various big game animals for all parts of the Territory.

In general, the open season on deer is from September 1 through 30; on moose, September 1 through 20, and December 1 through 10; on caribou, August 20 through September 30, and December 1 through 15; on mountain goats, September 1 through October 31; on mountain sheep, August 20 through 31; on large brown bear and grizzlies, September 1 through

CHART CALENDAR

ONE of the private pilot's most important navigational aids is the sectional aeronautical chart. Because they are so important, FLYING publishes a corrected listing each month. Charts can be purchased for 25 cents each from the Coast and Geodetic Survey, Washington 25, D.C., or from one of its many authorized agents throughout the country.

SECTIONAL

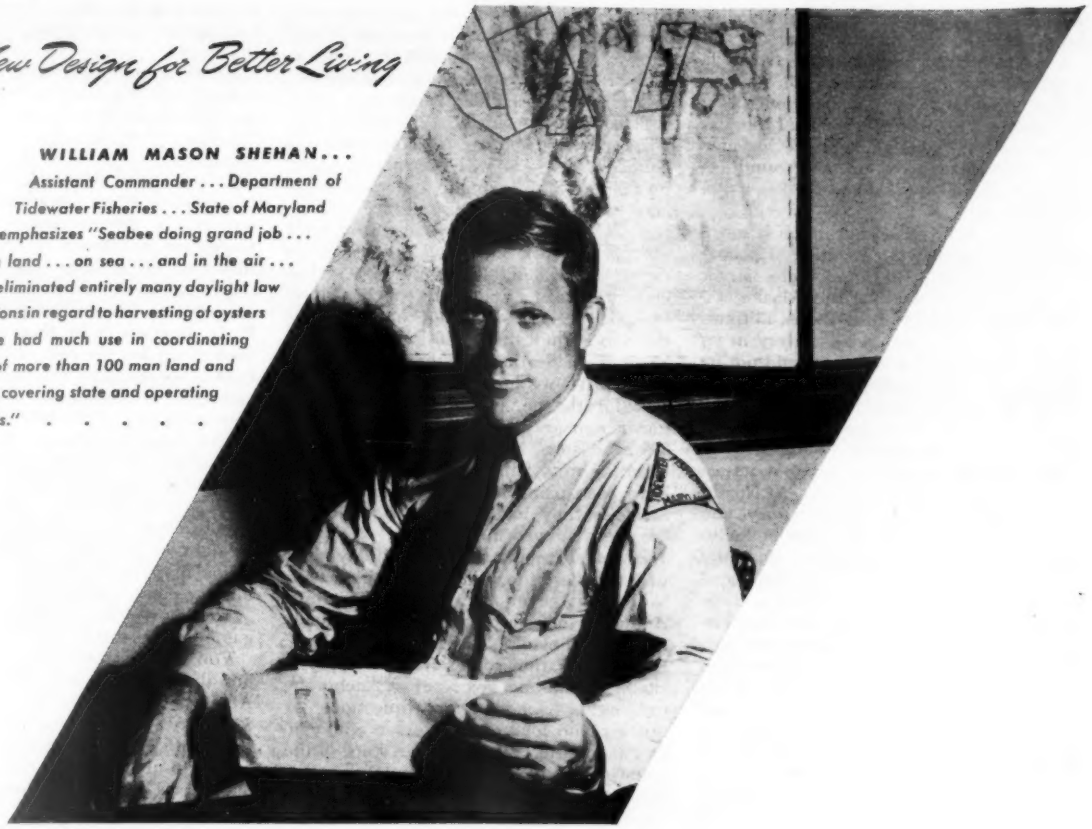
Map	Date	Minor Change
Aberdeen	May 29, 1947	
Albany	Jan. 7, 1947	
Albuquerque	Mar. 7, 1947	
Aroostook	Dec. 31, 1946	
Austin	Jan. 28, 1947	
Beaumont	Jan. 28, 1947	
Bellingham	Apr. 30, 1947	
Birmingham	Apr. 11, 1947	
Boise	May 1, 1947	
Boston	Jan. 14, 1947	
Burlington	Dec. 31, 1946	
Butte	May 7, 1947	
Casper	May 16, 1947	
Charlotte	Apr. 21, 1947	
Chattanooga	Apr. 22, 1947	
Cheyenne	May 17, 1947	
Chicago	Dec. 24, 1946	
Cincinnati	Apr. 13, 1947	
Cleveland	Jan. 7, 1947	
Corpus Christi	Feb. 4, 1947	
Dallas	Mar. 21, 1947	
Del Rio	Jan. 22, 1946	Jan. 28, 1947
Denver	Mar. 11, 1947	
Des Moines	June 13, 1947	
Detroit	Dec. 31, 1946	
Douglas	Jan. 14, 1947	
Dubuque	Oct. 2, 1945	Dec. 12, 1946
Duluth	May 28, 1947	
Elko	May 1, 1947	
El Paso	July 13, 1946	Jan. 17, 1947
Fargo	June 15, 1947	
Glacier Park	May 12, 1947	
Grand Canyon	Mar. 11, 1947	
Grand Junction	Mar. 11, 1947	
Green Bay	June 9, 1947	
Huntington	Apr. 21, 1947	
Jacksonville	Feb. 7, 1947	
Kansas City	Mar. 18, 1947	
Klamath Falls	Apr. 29, 1947	
Kootenai	May 21, 1947	
La Grande	Apr. 23, 1947	
Lake Huron	Dec. 30, 1946	
Lake Superior	June 15, 1947	
Lake of Woods	May 24, 1946	Nov. 19, 1946
Lewiston	Jan. 8, 1947	
Lincoln	May 29, 1947	
Little Rock	Mar. 19, 1947	
Los Angeles	Feb. 25, 1947	
Miami	Feb. 24, 1947	
Miles City	May 6, 1947	
Milwaukee	Dec. 31, 1946	
Minot	May 21, 1947	
Mobile	Feb. 3, 1947	
Mt. Shasta	Apr. 25, 1947	
Mt. Whitney	Feb. 21, 1947	
Nashville	Apr. 7, 1947	
New Orleans	Jan. 23, 1947	
New York	Jan. 9, 1947	
Norfolk	Apr. 25, 1947	
Oklahoma City	Sept. 23, 1946	
Orlando	Feb. 13, 1947	
Phoenix	Mar. 3, 1947	
Pocatello	May 12, 1947	
Portland	Apr. 20, 1947	
Prescott	Mar. 5, 1946	Sept. 3, 1946
Rapid City	May 9, 1947	
Reno	Feb. 17, 1947	
Roswell	Sept. 16, 1946	
Sacramento	Feb. 16, 1947	
Salina	Mar. 15, 1947	
Salt Lake City	May 6, 1947	
San Antonio	Jan. 28, 1947	
San Diego	Feb. 26, 1947	
San Francisco	Feb. 21, 1947	
Savannah	Apr. 18, 1947	
Seattle	Apr. 23, 1947	
Shreveport	Apr. 16, 1947	
Sioux City	May 28, 1947	
Spokane	Apr. 23, 1947	
Trinidad	Sept. 16, 1946	
Tulsa	Mar. 26, 1947	
Twin Cities	June 10, 1947	
Washington, D.C.	Apr. 21, 1947	
Wichita	Mar. 5, 1946	Sept. 16, 1946
Williston	May 5, 1947	
Winston-Salem	Apr. 25, 1947	
Yellowstone Park	May 9, 1947	

LOCAL

Brownsville	Jan. 29, 1947	New York & Vicinity	Aug. 6, 1946
Los Angeles	Mar. 4, 1947	San Diego	Mar. 18, 1947
Miami	Feb. 18, 1947	Seattle	Nov. 28, 1946
		Washington	June 6, 1947

The various minor changes indicated are not of sufficient importance to make the previous print obsolete. All charts carrying dates previous to those shown in large type on this list are obsolete for use in flight.

New Design for Better Living



WILLIAM MASON SHEHAN...
Assistant Commander ... Department of Tidewater Fisheries ... State of Maryland emphasizes "Seabee doing grand job ... on land ... on sea ... and in the air ... has eliminated entirely many daylight law violations in regard to harvesting of oysters ... Have had much use in coordinating activities of more than 100 man land and water force, covering state and operating 30 patrol boats." . . . . .

"For Business ... or Sport nothing compares with this VERSATILE amphibian"

Used by the Tidewater Fisheries for survey work and patrol ... Flying from and to the labyrinth of waterways on Chesapeake Bay, the Seabee proves its sterling efficiency in another exacting task ... Rough, tough, take-offs with four passengers and full fuel loads are the daily chore ... and the rugged hull and powerful pusher have earned highest praise from critical Pilot Shehan ..."A sound dependable airplane" is the way he puts it. For Business or Sport, you too will appreciate this New Design for Better Living .... Price $6000 F.A.F.

FREE ... Your copy of "Transportation Unlimited" Write Dept. N-2 ... Republic Aviation Corporation, Farmingdale, Long Island, New York. . . .

DeLuxe **Seabee**

A product of REPUBLIC AVIATION

Makers of the Mighty Thunderbolt

June 20; and on brown, black and glacier bears, September 1 through June 20.

On grouse and ptarmigan, the season is August 20 through February 28.

For either sport, your plane is virtually an essential in Alaska, because of the distances and the almost complete absence of any means of travel on the ground except the boat in the summer and the sled in the winter.

If your holiday plans involve more viewing of scenery and meeting of people than fishing and hunting there is, of course, no closed season. But Alaska is a huge place, twice as big as Texas. 13 times as big as Ohio. It has wide variety in its scenic attractions. A month would not be too long if you plan to see much of it. While its winter face is attractive, the problems of cold weather flying must be given sober consideration.

You can see Alaska in most of its aspects by staying on the airways. At Northway, where you enter the Territory, you get your first taste of the kind of facilities available. Air navigation facilities are all there, of exactly the same character, volume and excellence as those in the United States. The principal airports, of which there are some 50 today, are nicely spaced along the 8,000 miles of airway, roughly about every 100 miles. Mostly, runways are longer than you will ever need. For example, at Annette Island, Gustavus, Big Delta, Northway, Yakatat and many other points, there are 7,500-foot paved runways. At Tanacross, Summit, Talkeetna, Tanana, Cordova, Kenai and many others, runways are 5,000 feet long. If you hanker for longer runways, Army has a 9,200-foot one at Ladd Field, Fairbanks, and an 8,500-foot one at Elmendorf Field, Anchorage.

These are the officially recognized airports, described in the Alaskan Airman's Guide, which you will use in any flying up there. There are many others. Of special interest to aerial visitors are a number of dispersal strips which were built during the war, many of which are located "in the middle of nowhere," but close to streams and lakes where fishing is good. Space does not allow listing them, but guides and Alaskans generally, know their location and their advantages. And still more landing places are available for the personal plane pilot which never appear on maps. These are the 200 sand spits, hillsides and gravel beds, even the mud flats, which Alaskan pilots have been using for years—and the only facilities they had before the CAA and the Army moved in.

Based at Anchorage, the holiday pilot will have as wide a choice of fishing trips as he can cover in a reasonable time. Actually, there are too many good spots nearby and available by plane to list here. Best information comes from the professional guides, and Tex Noey at Anchorage can either answer your questions or quickly find for you the person who can. In Alaska the sporting goods store is the usual center of exchange for information on hunting and fishing.

As for equipment, the hunter provides his own gun and ammunition and his own fishing tackle, and usually his own sleeping bags.

Hotel accommodations in Alaska are difficult. In the hunting season all hotels are crowded. It is unwise to visit the Territory without reservations in advance.

Flying out of Anchorage, if your plane is on floats, Alaska is your oyster. Even on wheels the available good fishing places are numerous. It may be too late this year to arrange big game hunting trips. A recent pilot-guide visitor to the office of the Alaska Delegate to Congress, E. L. Bartlett, said that all guides are booked up for the rest of the year. Noey in Anchorage says this may well be so, and that arrangements this late in the year probably would be hard to make.

The pilot mentioned above will provide plane, all expenses, food—everything but hunting gear—for $100 a day, with a minimum of 15 days. This service includes much more than getting the hunter in sight of the game. It involves supervision of packers, cooking, camping, taking care of trophies, etc.

For short trips, seeking fish or small game, guides usually charge $15 a day.

You will find little use for automobiles, and then only in such cities as Fairbanks, Anchorage and Juneau. Rental is about $20 a day. Many kinds of boats are available, and rental of an outboard motor comes to about $7.50 a day.

Licenses for non-residents are fixed by law. For big game hunting the license costs $50; this includes permission to shoot small game. For fishing the fee is $2.50 and for small game, such as birds, $10.

Best equipment for pleasurable Alaskan flying is a four-place plane with only two persons aboard. Emergency equipment takes up considerable space and weight. However, if the hops are to be short and over airways or surface routes that are fairly well frequented, some of the stuff may be left behind. Use local experience in deciding on this. Longest hop between fields along the airways is about 200 miles, but in general, there is a field every 100 miles along the airways. The length of side trips out of established bases will be determined by your equipment.

Vacations to Alaska, whether they are by air or surface, often are disappointing because the visitor sees or does few of the things he has come to associate with that far country. The short-time guest is likely to hear amazing fish stories and actually see only a two-pound salmon steak in somebody's refrigerator. They're always "running" next month, or "you should have been there last week." Thus it is wise to map out certain specific trips in advance that promise the widest variety of Alaskan scenery and experiences, if it is simply sight-seeing that interests you.

One flight over the great muskeg wastes is all you will want to see, and this you will get in the normal course of getting across country in almost any direction. Mountain scenery is a must, and this is available in fairly short flights out of Anchorage. Go north over the Alaskan range and land at Farewell to stretch your legs and eat your lunch (which you'd better take with you). Confiden-

SCHOOLHOUSE WITH WINGS

PETER BANCROFT, District Superintendent for schools for Kern County, Calif., solved a schoolroom shortage by paying $200 for a surplus Curtiss-Wright *Commando*.

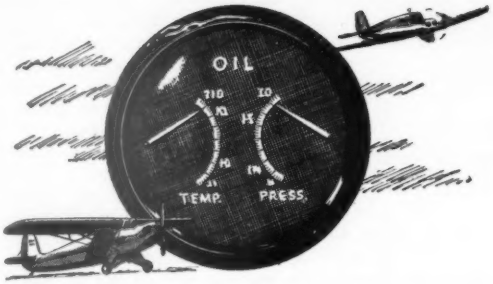
Bancroft hired an ex-Hump pilot to fly the plane to Weedpatch Airport near Arvin, Calif., for $50 and laid out another $20 for gas and oil. Once the plane landed at Weedpatch, farmers hooked onto it with two tractors and hauled it one mile to Sunset School. Here the tailwheel was to be jacked up and gear raised to level the *Commando's* floor.

"Where else could we buy or rent a temporary room that will seat 35 children for $270?" asks Bancroft who was already planning to get another *Commando* classroom soon.

Standard of California's PLANE FAX

A page of service tips for private flyers and fixed-base operators

How high can your oil temperature go?



When oil temperature goes dangerously high, the lubricant becomes too thin. Since thin oil cannot provide an effective seal, your engine is plagued with blow-by and the danger of stuck-rings. Oil temperature should be held within your engine manufacturer's specified limits. Until the perfection of RPM Compounded Aviation Oil with its adhering agent and oxidation inhibitor, 200° F. was considered the top limit. With "RPM," however, the margin of safety has been considerably increased and operation at higher temperatures can be tolerated.

Why Chevron Aviation Gasoline increases range

Standard engineers constantly test Chevron Aviation Gasoline with devices like this electronic pressure-recording machine. This and other special tests mean more powerful punch in Chevron Aviation Gasoline that gets you to the airport you ordinarily couldn't quite make because it provides greater range. To consistently get long range, and resulting economy, stick with "Chevron"... like the leading manufacturers and airlines in the West who use Chevron Aviation Gasoline exclusively.

Hazardous to clean engines with gasoline

It is the flash point of a petroleum product that determines how safely you can handle it. Gasoline, when used to wipe off a plane, in addition to damaging fabrics and other materials, is hazardous because of its low flash point. RPM Aviation Solvent, highly refined with a high flash point, has a volatility range which prevents it from drying too rapidly for thorough cleaning of all metal planes and engine parts, and it can also be safely used to remove spots and oil stains from fabrics.

Chevron National Credit Cards Available

For private flyers, good at airports throughout the United States, Canada and Alaska. If you reside in the West, write Standard of California, 225 Bush Street, Room 1618, San Francisco 20, California or ask the Standard Airport Dealer at your field for an application blank.

CHEVRON AVIATION GASOLINE

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tially, the table set by the wife of the CAA resident manager is one of the best in Alaska, but she hasn't laid in enough for you. She writes her grocery order once a year, and extras required by casual visitors must be brought in by air, and at regular air transportation rates. You'd not care about paying that kind of money.

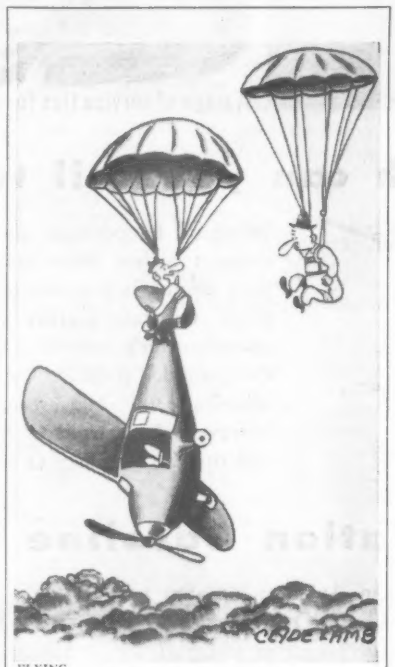
You've come up over Rainy Pass which requires an altitude of about 5,000 feet. It is narrow in places, and the hardy Alaskan boys like to fly down below the tops of the mountains on each side. This way they can see the mountain goats and sheep as they go by, but you had better ask—and take—some good advice on this practice, and fly high.

On the way back, come around through Ptarmigan Valley, a wide, beautiful pass. It's the longer way around, but you can land at Skwentna, on the Yentna near Su Sitna, so you'll have something to talk about back home. These two fields, Farewell and Skwentna, are typical of a great many in Alaska, placed strategically along the airways by the CAA. Expensive to build they were, too, and you as a taxpayer, will enjoy learning about their value. Skwentna is lighted, has a 3,700-foot runway and radio facilities. Farewell's facilities are the same, with a 5,000-foot runway. There is no servicing at either field.

You cannot hope to cover Alaska adequately unless you have at least a month to spend. You need also a plane capable of 300-500 miles range and good carrying capacity, so it will be essential to pick and choose among the many interesting flights and destinations. Tops among these might be:

THE MT. MCKINLEY AREA. Here is some of the grandest scenery in the world, and you can get close to the grandeur in your plane. If you can make it up to 20,000 feet, the world is yours. You can look McKinley right in the eye from there. There is a field at McKinley National Park, and a CAA intermediate field at Lake Minchumina, about 40 miles away. From Anchorage to McKinley it is about 150 miles. The McKinley field has a runway 3,000 feet long, and Minchumina's is 4,000 feet long. In season, you can stay at the hotel at the McKinley Park, but reservations are needed in advance because of the Army patronage the resort enjoys at present.

THE KENAI PENINSULA AND THE PRINCE WILLIAM SOUND AREA. This is not far from Anchorage, and a typical sight-seeing flight. From Anchorage to Kenai, 64 miles; to Homer, 69 miles. From Homer the flight over the Prince William Sound area along the shore to Whittier is a flight of beauty that will be remembered. There is no field at Whittier, but the Alaska railroad terminates there and provides a good "iron compass" back to Anchorage. Kenai and Homer have 5,500- and 5,000-foot runways, but no service or fuel. The Kenai peninsula is one of the best big-game hunting areas in Alaska, but a recent disastrous forest fire is reported to have had very serious effects in that region.



FLYING
"She isn't insured!"

THE GLACIERS and the rugged, inspiring Southeast Coast. On floats or on wheels—you could make a landing on the beach in an emergency—this is something to see. You get on much better terms with a glacier when you can see it all at a glance and get an idea of where it is going. You may want to land at Juneau and get inside the great Mendenhall glacier, but that is a side trip. Small planes are cautioned against flying "outside" route to Alaska. There are water hops too long for safety in single-engined planes. From Anchorage to Juneau, go by way of Gulkana, Northway, Snag and Whitehorse about 810 miles. That way you'll be seeing the gold fields, and the famous Chilkoot Pass would not be far off course. If you follow the shore line between such fields as Annette Island, Yakataga, Yakutat and Cordova, the hops will be too long for small planes. By all means take a flight down Excursion Inlet and drop in at the CAA field at Gustavus on Strawberry Point, 50 miles from Juneau.

You might want to see Alaska's great fishing industry. Out of Anchorage head for Bristol Bay, via Kenai, 64 miles; Homer, 69 miles; Iliamna, 99 miles; Naknek, 101 miles; and Bethel, 221 miles. The shortest field here is Iliamna, 3,800 feet. Gas and oil are available at Bethel. Naknek is the center of the fishing area.

An alternate route would be through beautiful Clark Pass and over Clark Lake, 30 miles long. Mountains tower 8,000 to 10,000 feet on either side, and no more beautiful flight can be taken in Alaska.

There are Indian villages galore throughout the Territory. Many are on rivers and if you are on floats, the visits will be easy. Alaskan pilots use sand bars.

If it's Eskimos that interest you, base yourself at Nome and hop to Kotzebue or Cape Wales. There are CAA fields at each place. There is a 3,000-foot gravel strip at Kotzebue, and fuel can be brought out from town. The field at Wales is similar in size, but has no servicing. Pt. Barrow will attract you, because it's the farthest point north of this continent, and very interesting. It's a long hop, and you'll use a makeshift airport along the shore. The Navy has a field, but it is snooty to civilian visitors.

Spend some time in Nome, facetiously called "the hell-cursed town near the Pole." Many say Nome is not a place, but a state of mind. Find an old timer who knows the history by all means. See the gold dredges 20 stories high. There are three fields at Nome, from 3,200 to 6,000 feet in length with ample servicing.

With your plane, hunting and fishing activities are simplified. For example, you should be able to land, with a guide, not too far from mountain-goat haunts. Even Farewell is fairly close. Your guide can steer you to lakes and streams where the fish will form a bridge across which you can walk and never wet your feet. Be careful or someone will show you his home movies showing men catching trout in mountain streams with their bare hands. No guide in Alaska is afraid of airplanes. END

MISCELLANEOUS COSTS IN ALASKA

Hotels	Double Room	Single Meals	Gasoline	Mechanic Hire	Taxi to Field
Juneau Hotel	$3.50 to $10	$0.60 to $3	.26	At all places, labor charges are $2.50 to $3 an hour	$3 to $5
Anchorage Hotel	$5 to $10	$0.90 to $5	.30		$1 to city field $2.50 to army
McKinley Park Hotel	$6 to $12	$0.70 to $5	None		None
McGrath Roadhouse	$7 single, including meals, or	$1 single meal	.50 to $1		None needed
Fairbanks Hotel	$2.50 to $10	$1 to $4	.38 to .40		.75 to city field $3 to army
Hotel Nome	$5 to $10	$0.90 to $3	.36 to .45		$1.50
Kotzebue Roadhouse	$7 single, including meals, or	Each meal $1.25	$0.50 to $1		None available
Pt. Barrow	No commercial facilities available		$0.75 to $1.25		None available

CAA Stations: There are no commercial facilities at these stations. Only in emergencies can CAA employees be expected to care for travelers. In many places, they get one grocery delivery a year, and emergency food must be flown in at high air freight rates. CAA people are hospitable, but seriously handicapped to show their hospitality. Usually, they have no gasoline for sale.

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START FLYING NOW!

Have you actually been **up** in a modern personal plane? If you have flown recently, you know how easy it is to fly one of these light, stable ships with their ease of handling, their reliability and speed.

But if you haven't flown, make a date today with the Continental dealer at your nearest airport. He'll be glad to give you a demonstration flight and to talk over this whole business of flying.

The cost of taking flying lessons is small, and if you're eligible under the G. I. Bill of Rights the cost will be practically nothing. So don't put it off any longer — get on the phone and make a date to fly! You'll never regret it!

MANY men and women who learned to fly just for the sport of it are finding more and more real uses for the planes they own or rent. Whether it's visiting relatives or friends who live at more than convenient motoring distance, or doing a dozen and one useful jobs for a Flying Farmer, the modern Continental-powered plane is a fast, useful means of transportation.

Continental Motors Corporation
AIRCRAFT ENGINE DIVISION — MUSKEGON, MICHIGAN

"C. G." Is Back

(*Continued from page 44*)

Hundreds were built and the company couldn't keep up with the demand.

In 1935, Taylor, his health broken, dropped out. Piper took over, changed the company's name to Piper Aircraft Corporation, and moved to Lock Haven, Pennsylvania.

But Taylor couldn't stay out of the game. The next year he made a comeback. He designed a new side-by-side model, retaining some *Cub* characteristics but with additional changes. That was the first Taylorcraft.

The company moved into an aircraft plant previously used by the Alliance Aircraft Co., Alliance, O. At first, the new outfit was called the Taylor-Young Aviation Company but it eventually became Taylorcraft Aviation. An avalanche of orders was received and thousands of airplanes poured out of the plant.

Five years ago, C. G. again dropped out of the plane manufacturing scene. He organized several small companies, one making midget washing machines, the others producing aircraft parts during the war.

Taylor wasn't satisfied on the sidelines. In the first place, he opposed many policies of the new Taylorcraft Aviation. This disagreement flared into the open last fall. Taylor filed a $1,000,000 damage suit against the company, charging in Federal Court at Cleveland, Ohio, that the company was making unauthorized use of his name, as he had not been connected with Taylorcraft since 1942. He contended that his reputation as a plane builder and designer had been injured.

Taylorcraft Aviation retaliated with a $2,000,000 libel suit against Taylor. It charged that Taylor's contentions were untrue and that the suit had injured its credit and damaged its standing in the aviation industry.

Just as things were getting hot, Taylorcraft went broke in the midst of a big factory expansion program. The $2,500,000 plant was purchased for $500,000 by Armour & Company of Chicago, and the suits apparently died when Taylorcraft went into trusteeship.

And back into the picture came C. G. Backed by a group of Taylorcraft distributors and dealers, he bought the manufacturing rights, jigs, dies, tools, and uncompleted planes of the defunct corporation. Then he leased space in the Taylorcraft plant from Armour and set out to manufacture over 100 planes before November.

"Our next big job," he says, "is to get a new plant sometime between now and November. We'll take the best offer we get—and we've had a lot of them."

C. G. insists the company will start out in a small way, stressing "quality instead of quantity," making some new planes and replacement parts for the thousands of Taylorcrafts now flying.

Officers and directors of Taylorcraft, Inc., are Ben J. Mauro, Ambridge, Pa., chairman of the board; C. G. Taylor, president; O. F. Nesmith, Alliance, O., vice president; Bernard Kapp, secretary-treasurer; and Mario Fontana, Iron Mountain, Mich.; Foster A. Lane, Columbus, O.; L. W. Hubert, Vancouver, Wash.; A. F. Gregg, Grand Junction, Colo.; Rupert F. Alrich, Norway, Me.; E. G. Barnett, Wisconsin Rapids, Wis.; and E. C. Swinson, Pratt, Kans., board members.

Objective of the new Taylorcraft company is to produce "good, efficient and economical planes—at low prices." Three models are planned for the near future. The first is the "Model 47," which sells for $2,295 f.a.f. Alliance.

This 65-h.p. plane is now in production. A deluxe 85-h.p. side-by-side model with more speed and refinements in interior furnishings and instrument panels is next on the list.

It will have all the Taylorcraft characteristics—speed, ability to get safely into and out of small fields, ruggedness, good load capacity, and comfort, Taylor says.

And it will sell for $2,500 f.a.f. Alliance, making it the most inexpensive 85-h.p. plane.

Taylor's main interest today, though, is centered around the "family plane of the air," on which he is hard at work. He won't say much about it—but promises it will be designed as the lowest-priced plane in the four-place field.

"It must sell for less than $3,500," he says, "and it must be cheap to operate and to maintain—otherwise it won't be worthwhile. The mass market can't afford more costly four-place planes—and they must have a four-place plane."

C. G. insists his goal is not to produce the fastest four-place plane. High speed, he believes, is secondary with the average low-income customer, who is more interested in a practical model. A cruising speed of 110 to 115 m.p.h. is adequate, he says, especially if the plane can operate at low cost and from small fields.

He is not discouraged with the present situation in the personal plane manufacturing industry. He thinks the business is just getting "down to earth" at the present time.

"There were predictions," he said, "that post-war planes would darken the skies. Every business man was to commute to work by air. Some manufacturers built plants indicating they really believed these rosy dreams.

"When wartime demands for planes slackened, pessimists came forth with declarations that the 'air age' never would come. Now, plane users and manufacturers seem to have settled down to a more realistic view.

"Briefly, it is this: Aircraft registrations are steadily increasing, despite cutbacks in production. Lightplanes daily are finding new uses in commerce, industry and agriculture.

"And new airfields and air strips will encourage family ownership of planes for pleasure. I believe we can expect a sound and steady growth of the industry." END

FLYING

"After 22,678 hours of instruction he's finally ready to solo!"

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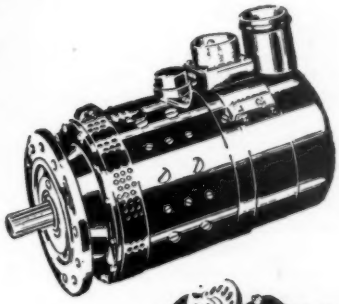
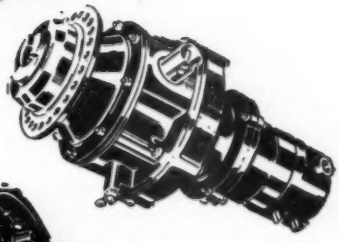
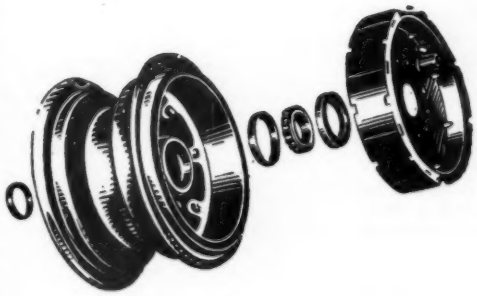
HERE'S a great opportunity to purchase top-quality Aircraft Components from *your* government at fraction-of-cost prices. Engines, hardware, instruments, propellers, engine parts, tires and tubes, carburetors, magnetos, etc., are being offered. Thousands upon thousands of items are available. Figure out your present and future needs . . . and act without delay.







Purchasing of this equipment has been simplified to a high degree. Approved Distributors have been appointed by the War Assets Administration on a basis of their technical experience and their ability to serve you intelligently and quickly. These Approved Distributors are located from Coast-to-Coast. Why not write, 'phone or visit your nearest Approved Distributor and get acquainted? Write to the Office of Aircraft and Electronics Disposal, War Assets Administration, 425 Second Street, N. W., Washington 25, D. C. for a complete list of Approved Distributors.

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1285

Southern Idaho

(*Continued from page 28*)

After gassing up, fly 12 miles up the canyon to Ketchum, and land on the 1,500-foot dirt strip paralleling the highway east of town. Tie down the ship and take the free lodge bus from the rail station in Ketchum for the two-mile ride to the resort.

If the 1,500-foot Ketchum strip is too small for your ship, you can tie down free at Hailey—there is no hangar space available—and take a cab for 50¢ into Hailey rail station. There you can grab the Sun Valley Lodge bus for the 14-mile ride to the resort.

For flyers with well-fed billfolds, rooms are available at Sun Valley Lodge and range in price from $6 to $40 per day. Slightly less expensive is the Challenger Inn, where guest rooms are from $5 (single, stand in line for shower) to $12 (double, ditto).

But let's quit dreaming. Most pilots are in the lower brackets and will head for the chalets, used to house contestants during the various sports contests but available to the public most of the summer season. The bite is less painful: for two persons it costs $3 apiece per day, or for four persons $2 apiece per day. Rates do not include meals, which run from $1 up at the Inn's Cafe Continental or at the dining rooms in the lodge. For reservations write to W. P. Rogers, general manager, Sun Valley, Idaho.

Self-styled the "seaside ranch in the mountains," Sun Valley offers a wide variety of recreation: golf, $3 a day; summer ice skating, skates $1, rink $2 a day; swimming, free; scenic horseback rides, $2 per horse for first hour and $1.50 per hour thereafter; tennis, free; skeet and trap shooting, gun $1, 25 birds $3. Small fees are charged for such activities as boating, croquet, badminton, bowling and archery.

After you've had enough of rubbing elbows with movie stars and other celebrities who frequent this popular playground, hop in the free bus and ride back to your plane.

Take off and climb to 11,000 feet before flying northwest over Galena Pass to Stanley. Precipitous 10,000 to 11,000 foot ranges parallel your course and downdrafts are king size. A healthy 3,000-foot clearance over the 8,000-foot pass is good insurance.

Once over Galena, follow the valley road north-northwest past a string of lakes along the base of inspiring Sawtooth range to two clusters of buildings at the first major branch in the road. That's Stanley, Idaho.

Stanley is a sleepy village of about 75 individualists. It wakes up once a week for a knock-down, drag-out Saturday night dance that attracts revelers from 100 miles around. It gets off to a running start at 8 p.m. and ends in exhaustion at 8 a.m.

Neither of the two possible landing spots near Stanley is shown on the air map. For two-place ships, Floyd Silva's pasture is probably the best choice. Follow the road turning left from town. The strip is about three miles northwest of town, on the north tip of a low hill jutting into the valley from the east. The field is cut into 30-foot strips by irrigation ditches, and a post and wind sock are located in the center. Land on the first strip west of the sock. Even if the ground is wet, the base of the field is solid. It is encircled by fence, and is 2,300 feet long, but the elevation is 6,500.

If you're in a larger plane, you had better fly 12 miles farther up the road to the Cape Horn strips. These dirt strips, longest of which is 3,200 feet, are in the shape of an X, with approach markers. They are plainly visible at the left of the road.

No facilities are available at either place. You left all that back in civilization.

At the end of the southeast strip at Cape Horn there is a ranger telephone. Don't look for a dial. This is a different system. Crank the handle three times. That signals the Stanley operator and, theoretically, she is the only one who will answer. Cranking the handle, however, rings 42 other phones in the sparsely populated area. So you can never be certain who will answer. Some persons misconstrue the signals. And others just want to know what's happening "down the line." It's an unusual little layout, and you meet interesting people that way. If you keep trying you'll eventually get the operator. Ask her to connect you with Sunbeam Store. Dodger Davis, manager, will drive out and pick you up for a nominal charge.

No phone is available at Silva's pasture. So if neither Floyd nor his father are at their nearby farmhouse, step to the road and thumb your way into town. Every time I tried, the first motorist has stopped to give me a lift.

When you get to Stanley, call Dodger for transportation 13 miles down the canyon to Sunbeam, where you'll meet Helen Davis, Dodger's wife and cook *par excellence;* Howard Davis, Dodger's father and gunsmith extraordinary; and Dodger's two sons, Bob and Doug, youngsters as untamed as the surrounding country. Here's where your sleeping bag comes in handy. The three cabins are always reserved six months in advance. Dodger's store will provide your food and special fishing tackle needs.

Sunbeam serves as a springboard into a wilderness dotted by hundreds of lakes stocked with fish. If you are an armchair angler, amble 50 yards from the cabins to the Salmon River and try for rainbow trout. You also might catch the tail end of the salmon run which lasts annually until about September 1. These chinooks weigh from 15 to 30 pounds and give any fisherman a run for his money. Salmon River is open for fishing the year round and provides a three-star feature—the steelhead run, the salmon run, and the large rainbows that follow the salmon upstream. You can't miss.

If you don't mind hiking, hit the trail to a virgin lake, filled with fish so naive they'll swim between your legs as you stand in the water. These lakes are not included on the road or air maps, but Dodger can show you the way on his ranger's map.

Howard Davis, Walt Conrad, George and I tried Mystery Lake. After three hours of trekking over slide rock and up steep game trails we hit this little azure gem nestled at the top of a range north of Sunbeam. Near the shore swam our welcoming committee—15 or 20 California golden trout. The golden's kaleidoscopic color dazzles the eye. Coming from ice-cold water, they're solid and delicious to eat, but they look so much like an artist's palette you'll want to

15 YEARS AGO

FROM the September, 1932, issue of this magazine:

A new world's speed record for a 500-kilometer closed course was made by a French aviator, Massotte, in a Bleriot *Spad* which flew the distance at a speed of 191.75 m.p.h.

United Air Lines rescinded a non-smoking rule on its airliners.

In Egypt the British Government was using Vickers-Napier planes experimentally for moving troops. In the first experiment a sizable squad was flown to Cairo in bumpy weather and all the men were airsick.

Louis Guerchais, a French engineer, designed a tailless "stratospheric" plane on the flying wing principle. With an engine of only 20 h.p. and a total surface of 215 sq. ft. this little plane attained a speed of 80 m.p.h. Its total weight was 625 pounds. The engine was located in a nacelle high above the wings.

The newest Douglas amphibian had an absolutely watertight cabin so that if it were entirely submerged not a drop of water would reach the occupants. Duralumin bulkheads and shatter-proof glass were other features of the flying boat.

Springfield Aircraft Co. in Massachusetts was building a Thompson Trophy racer for Russell Thaw to fly in the National Air Races. Designed by Robert L. Hall, the plane was scarlet, with black areas on its wings, a black blotch on its nose and black stripes on its fuselage. It had an enclosed cockpit and new type landing gear. Its speed was expected to exceed 300 m.p.h.

The Clinogiro, a combined airplane and autogiro invented by two French engineers, was tested successfully. The first model was a revamped Caudron C-193 low-wing monoplane with a smaller and stiffer rotor than the conventional autogiro. Equipped with a 95-h.p. engine, it made an average air speed of 108 m.p.h.

A new type gull-winged monoplane was used by Capt. Vincent Malloy of the U. S. Militia on a tour of National Guard Units. The wings, thought to be the ideal type of lifting surface, were semi-elliptical and tapered both at the outer tips and at the fuselage.

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Photographs by Joe Rosenthal

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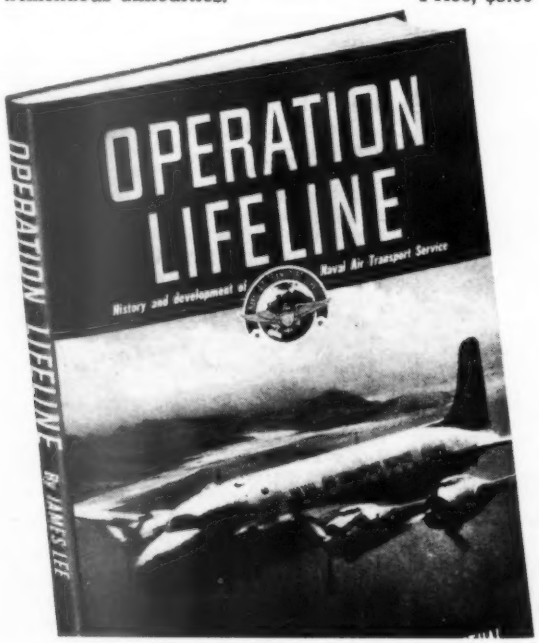

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frame the very first one you pull out.

We easily caught our limit there and in the precipitous little stream cascading out of the lake and down the mountainside.

In other isolated lakes and streams swarm a variety of fish: cutthroats, dolly vardens, rainbows, brooks, goldens, redfish, and others. Take your pick, and Dodger will show you where to catch them. Don't forget, though, that these lakes and streams close October 31, the end of the general Idaho fishing season.

When you've had your fill of fishing (and worn off a bit of shoe leather and several inches of waistline), ride back to the plane and take off for Mackay, where you can stop for fuel on the way to Big Springs. Fly down the canyon over Sunbeam, following the well-defined road to Clayton, then turn southeast over a 7,000-foot range to Chilly and down the valley to Mackay.

Mackay's lone gravel strip (NW-SE, elevation 5,900-feet) is 3,000 feet long. There are no repair facilities, but 73- and 80-octane gas is sold.

After refueling, head southeast down the valley about 20 miles to the edge of the plain. Then turn northeast, skirting the edge of the mountains, over Howe and Dubois and into the heavily wooded area along the north side of Island Park reservoir to Big Springs. You can fly due east from Mackay to Big Springs over the mountain ranges, but violent winds make it advisable to take the route across the plain.

Before landing at Big Springs airfield, circle the lodge ¾ of a mile east of the field. That's a signal for Mel Harris, owner of the lodge, to be at the strip. He'll furnish you transportation without charge. Incidentally, in approaching the Big Springs airport, be extremely careful on your approach. The field is surrounded by a solid mat of high pine trees. Two sod strips (N-S 2,500-feet, ENE-WSW 2,700-feet; elevation 6,350) are composed mainly of obsidian sand which never becomes muddy.

Harris has 16 cabins, singles with one double bed for $2.50 per day and doubles with two double beds for $3. Each cabin has a stove and cooking utensils. Food is sold at the lodge. A letter to him at Big Springs, Ida., will hold a cabin for you, but if you just buzz in, you may have to hit the sleeping bag again. Harris sells 80-octane gas at 35¢ a gallon.

One hundred feet from the lodge the Snake River's north fork begins, pouring out of countless springs and creating a stream literally alive with rainbow trout. If you want a visual treat, throw a handful of bread crumbs into the river from a nearby bridge and watch the trout churn the water eating them. If you want a more practical treat, throw your rod together, climb into one of Mel's three boats and fill your creel with fish. You don't have to be a wizard. If you're a purist, get them with flies. If you're unscrupulous like some of the rest of us, flip in a wood worm, grasshopper or spinner and you'll consistently sink a hook into the big ones. From that point you're on your own. Pound for pound, you'll never play a gamer fish than the rainbow trout.

Nearby woods abound with elk, bear, deer and moose. While fishing you'll frequently hear and see these big game animals, but they won't interfere with you if you don't bother them. The moose, particularly, frequent the river, eating moss on the bottom, oblivious to your piscatorial pursuits.

Last August, when fishing at Big Springs, John Matson, Rexburg, Ida., accidentally caught his spinner in the ear of a huge bull moose standing on the edge of the river. The moose took off with a bellow and disappeared in the trees with the spinner still in his ear, trailing a piece of broken leader. In October, Matson came back to Big Springs and shot a huge bull. You guessed it: there was Matson's spinner still lodged in its ear.

If you want diversion from fishing, take a two-hour boat ride through the rapids of Box Canyon with Harris or his assistant, Tom Parkinson. It's a scenic thrill with just enough danger to spice the adventure.

Even Big Springs with its abundance of fish won't be able to hold you too long. There's more to be seen in Idaho, and across the border in Montana and Wyoming. Take off and fly over the hill northeast of Big Springs. On the other side after a 10 or 15 minute ride you'll land at West Yellowstone, gateway into Yellowstone.

Like Big Springs, the West Yellowstone airport is girdled by pine trees—so play it safe. The field's elevation is 6,700 feet, and the two gravel and turf strips are 6,200-feet (ENE-WSW) and 3,600-feet (WNW-ESE). Though the port lacks repair facilities, 80- and 90-octane gas are sold. Wind socks are along the north edge of the field. And the free three-plane hangar operates on a first come, first served basis.

Pick up the ranger phone near the hangar (remember the system?) and call Doc's Place in the nearby town. Doc Bartlett, a tavern owner and father of a former Western Air Lines pilot, provides a free ride into town for pilots who land at the field.

West Yellowstone has cabin capacity for 2,500 persons. Prices range from $2 to $6 per day, and meals cost $1 to $3. Large free camping areas are available. But if

CONVENIENT LANDING FIELDS ON IDAHO VACATION ROUTE

Landing field[1] (longitude and latitude)	Phone number	Nearest town and distance	Number of runways	Length of longest runway	Gasoline grade	Service facilities	Write to
Burley (42°32′—113°45′)	125	Burley (1.3 mi.)	three	4,094′	80-91	Major repairs	W. L. Lecher, Airport Mgr., Burley, Ida.
Shoshone (Flying Bar "S") (42°59′—114°26′)		Shoshone (4.6 mi.)	one	1,200′	80		A. Floyd Silva, Airport Mgr., Shoshone, Ida.
Hailey (Friedman*) (43°30′—114°18′)		Hailey (0.8 mi.)	two	5,200′	80		W. P. Rogers, General Mgr., Sun Valley, Ida.
Challis (44°31′—114°13′)	44	Challis (1.2 mi.)	two	3,405′	80		Marle Harkle, Airport Mgr., Challis, Ida.
Silva's Pasture* (Stanley) (44°16′—115°2′)		Stanley (3 mi.)	one	2,300′			Dodger Davis, Sunbeam, Ida.[2]
Cape Horn Strip* (Stanley) (44°22′—115°6′)		Stanley (15 mi.)	two	3,200′			
Mackay* (43°54′—113°36′)		Mackay (0.8 mi.)	one	3,000′	73-80		
Arco (43°37′—113°16′)		Arco (1.5 mi.)	two	2,600′			
Dubois (CAA Intermediate Field Site No. 23) (44°10′—112°13′)	54	Dubois (0.8 mi.)	two	4,785′			
Big Springs* (44°30′—111°16′)		Big Springs (1.1 mi.)	two[3]	2,700′	80		Mel Harris, Mgr., Big Springs Lodge, Big Springs, Ida.
West Yellowstone*		West Yellowstone, Mont. (1.3 mi.)	two	6,200′	80-91		See [4] below
St. Anthony (43°56′—111°41′)		St. Anthony (1.1 mi.)	one	2,800′	80		William Martineau, Airport Mgr., St. Anthony, Ida.
Idaho Falls (43°30′—112°04′)	498	Idaho Falls (2 mi.)	two	5,150′	80-91	Major repairs	D. F. Richards, Airport Mgr., Idaho Falls, Ida.
Salt Lake City (40°46′)	5-4130 4-1181	Salt Lake City, Utah (2.5 mi.)	three	5,500′	80-100	Major repairs	Joe Bergin, Airport Mgr., Municipal 1 Airport, Salt Lake City, Utah

* Suggested stops for Idaho vacation.
1. Information not available on condition of fields for winter flying.
2. If accommodations not available, write to any of the following at Stanley, Ida.—Sawtooth Hotel, Herman Schut, Noel Nuttall, Archie Danner, Ace of Diamonds Club.
3. Not usable in winter except by ski planes.
4. For reservations at West Yellowstone, phone or write at West Yellowstone, Mont.—Madison Hotel, Martzell Lodge, Tepee Hotel, Huggins Cabins & Trailer Ct., Simpson Log Cabins, Stevenson Bungalows, Three Bear Lodge, Westward Ho Motel, Airport Cabins.

you arrive by early afternoon you're almost certain to find a cabin vacancy.

Bus transportation for a 3½-day trip through the park costs $25 per person, meals and cabins excluded. Meals cost about $4.50 a day and cabins from $1.25 per person per day to $2.50.

You'll see natural wonders that beggar description and explanation—the world's largest display of active geysers, spouting tons of steaming water into the air, bubbling multi-colored mud, steaming colored pools of startling beauty. The park teems with wild life, protected by the government. Bears wander nonchalantly through camp and cabin areas. Herds of elk, deer and buffalo graze near the highways.

When vacation time ends, head back to West Yellowstone and take to the air for the trip home, wherever it may be. George and I flew straight through to Salt Lake City in two hours 55 minutes.

Covering this backwoods paradise by air is by far the cheapest and fastest way. Main highways tend to run north and south throughout the area, but vacation spots are on a line running east and west. Doubling back and forth for long distances in a car would make the time and cost prohibitive, forcing elimination of one or more of the main points. The lightplane has the key to four vacations in one, an aesthetic and sporting feast of the best the outdoors can offer. END

Dr. GCA

(*Continued from page 47*)

35 years. He is blue-eyed, wears rimless glasses, is of fair complexion, with sandy, curly hair, smooth of face and standing 6 feet 2 inches tall. He looks like a lanky, tennis-playing student of UC rather than one of the institute's professors of physics.

At his newly-purchased home in Berkeley, Calif., near the campus, he's just like the neighbor next door. He and his young wife (the former Geraldine Smithwick of Chicago, whom he met and courted through university years), are proud of their two youngsters, Walter 6, and Jean 2, whose birthdays both fall on October 3.

In this "average American family" atmosphere, it is difficult to associate the husband and father with science and the authorship of such scientific papers as "The Production of Collimated Beams of Pure Thermal Neutrons in the Temperature Range 20° to 300° Absolute."

But at night after kids are asleep, Dr. Alvarez dangles one leg over the arm of a comfortable chair and goes to work. He spends about two hours each night, except when company comes, at this chore. He's too busy during the day at the Radiation Laboratory and there are too many interruptions.

Up there Dr. Alvarez is deep in the development of a linear acceleration machine which will speed up atoms to use as bullets to disintegrate other atoms. He is closely associated in the project with Dr. Ernest O. Lawrence, inventor of the cyclotron and Nobel prize winner in physics.

In the lab Dr. Alvarez's curiosity about

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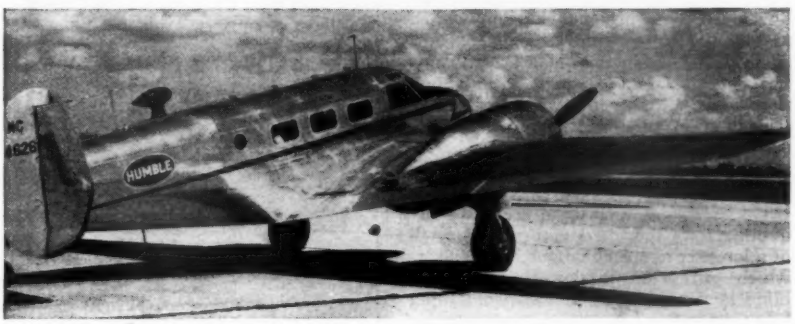

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things scientific causes him to stick pencils into a barrel-like high voltage contraption just to see if the 2,000,000 volts within will knock erasers off the pencils. Sometimes it does; sometimes it doesn't.

In the upstairs office he looks like a student hard at study. But then he lifts the phone to call Gerry, his wife. Their daughter is running a fever. It's fairly high but he assures her that all kids run a pretty high temperature and if it gets any worse they'll call Dr. So-and-So. He'll be home early, he says, and hangs up. Left on the telephone pad are a series of doodles.

He explains that an experimental physicist is one who likes to do things in an entirely different way from that employed before. When he finds others have taken up the techniques he has developed, he becomes uncomfortable and wants to get into something new again. He is trained to look at problems without attention to the way in which they have been solved before. Instead, he tries to do original thinking on the whole subject in order to come out with a better solution even though that new solution may be entirely different from anything yet tried. He best illustrates this by quoting from the introductory paragraph of a long set of specifications he once saw which purported to describe the ideal blind landing system. It went something like this:

"A blind landing system consists of a localizer, a glide path, and marker beacons."

This shows the engineer's approach to the problem of improving the three components of an existing type of blind landing system.

But the way the physicist approaches the problem is to say:

"A blind landing system consists of equipment which will get an airplane from the air onto the ground."

He has no preconceived ideas about how this should be done but looks into the various possible equipment which is available in many fields. Dr. Alvarez doesn't think he would have been able to take an existing blind landing system and make appreciable improvements because he doesn't happen to have that particular skill.

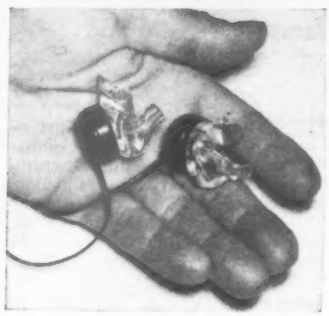
He admires and respects people who can, but it is not something which "I find myself equipped by native ability to do." In fact, it is one of the main reasons he got out of the GCA picture in 1943. It was apparent to him that what was needed from then on was a team of good development engineers to iron the bugs out of the GCA system he had developed.

He always has been mechanically-minded. As a boy he tinkered with clocks, door locks and made model, self-operating boats. Even now he thinks that an airplane is one of the finest pieces of equipment ever built.

His young son thinks the same way. Together, they avidly read aviation publications, with "Dad" explaining picture captions and comparing photos of planes with others. Then, too, he still "fixes" things about the house and finds Walter a big help.

Luis has no special hobbies, except perhaps in gathering good classical phonograph records. He says his work is his real hobby. His leisure time in the evenings is spent playing records and reading many of the popular magazines, mainly their factual articles.

Now that the kids are past the infant stage the Alvarezes get around a little more. They both play golf and plan to renew the game on the Bay District courses. Luis also wants to catch up on some skiing. But, like most everyone else, they want to wait to do their pleasure driving in a new automobile to replace their 1940 Chevrolet sedan.



PLASTIC EARS

PLASTIC ear plugs which could replace the pilot's headsets—if flyers are willing to pay $50 a set—are now being used by Lockheed test pilots.

Invented by Paul L. Bennett, Lockheed research engineer, the plugs have miniature headset speakers mounted in the plastic plug. Sound from the speakers travels through a hollow passage inside the plug directly to the outside of the ear diaphragm.

Value of the plugs over headsets, pilots report, is that they are lighter, almost completely eliminate outside noise, and the plastic material tends to absorb vibration.

Each set must be individually molded to fit the wearer's ears, accounting for the high price. Tony Le Vier (above) wears a set of the plugs and a lip microphone. Box attached to his tie controls receiving volume.

In the depression year of 1933 Luis was a college student. He had a bug to learn to fly but was short of cash. On Christmas, his grandfather gave him a $50 bill as a present.

Luis rushed out to an airport, cornered a $15-per-hour flying instructor and convinced that individual that he had to teach him to fly—right up to the solo stage—for $50. Because Luis was an apt pupil, made more so by the necessity of stretching his $50 bill, he managed to solo in three and a half hours.

Later he received gratis a full course of instrument instructions and hour after hour of Link trainer time. It was necessary, he believed, to know the intense visual concentration of an instrument-flying pilot before the problems of GCA could be solved.

His instructor was Lieut. Bruce Griffin, U. S. Navy, Pittsboro, N. C., who late last February was one of the first men to fire a guided missile from a submarine at the Naval Air Missile Test Center, Point Mugu, Calif. Lieutenant Griffin was the first person ever to fly GCA. But before this he took Alvarez into the air for almost 30 consecutive afternoons of instrument instruction.

"Other low approach systems had been worked out by engineers, without first hand knowledge of the pilots' problems," Alvarez said. "I believed a GCA system, to be successful, had to be developed around the pilot. And further, I wanted to know instrument procedure to enable me to do ground control work."

But Dr. Alvarez still does not hold a pilot's certificate. He has been too busy to acquire the flight time. He also believes that flying is the only way to travel from "here to there," and has put that feeling into practice—but on commercial airlines. He believes that private flying has a long way to go before planes will become as useful as the automobile.

"Present lightplanes, which are within reach of the average man, do not have enough range or speed to compensate for the difficulties of travel in them," he says. "It is so easy to fly in commercial planes that if one is interested primarily in speed, he can make use of the airlines.

"If you want to fly in a private plane without a good set of instruments, you can be held up by weather and after you reach your destination you have to find transportation from the airport to the city.

"What we really need is an airplane which can be converted into an automobile on arrival at a distant airport. But, as many have pointed out, when you make up this combination you end with a poor airplane and a poor automobile.

"At the moment I think of low cost private flying in the same class as sailing. If you have a sailboat you use it for the sport and not as a method of transportation." Somewhat strange words for a man who has done so much for aviation—but words of his own and spoken as his own opinion.

Luis Walter Alvarez (his name is pronounced "Louie," which he strongly pre-

fers to "Doctor," and especially "Professor") was born in foggy San Francisco. He describes himself as "one-fourth Spanish—that's where the Alvarez comes from; one-fourth Irish, and the remainder American." He attended grammar school at San Francisco and then moved with his family to Rochester, Minn., where his father, Dr. Walter C. Alvarez, is a noted Mayo Clinic stomach specialist.

While attending high school Luis spent a couple of summers working in a machine shop. His physician-father often took him to his medical laboratory but the boy was more interested in electricity running through wires than blood through veins. After high school he entered the University of Chicago, obtaining his B.A. in 1932. He spent the next four years doing post-graduate work there, majoring in physics and concentrating on the study of cosmic rays. He obtained his Ph.D. in 1936.

During his post-graduate course he had become interested in the work of Dr. Lawrence at UC. His greatest desire was to obtain a position in Dr. Lawrence's cyclotronic workshop. He was offered a research assistantship in physics at UC and he and his new bride hurried to Berkeley. He spent only five hours a week teaching and the remainder of his time in close collaboration with the laboratory group until 1940. At that time he was asked by the National Defense Research Committee to work at the Radiation Laboratory at the Massachusetts Institute of Technology on secret Government projects.

At MIT in the summer of 1941, he was watching an antiaircraft fire control radar set track a plane. He reasoned that if a plane's position could be determined accurately enough for it to be shot down, it could be known well enough to aid a friendly pilot to land. Then and there the idea for GCA was born.

After considerable work and alterations of original ideas, Dr. Alvarez, with the assistance of a close friend, Lawrence H. Johnston, now a post-graduate student at UC, and Homer Tasker, chief engineer of Gilfillan Bros., first firm to build the radar landing unit, succeeded in developing the first GCA set, the Mark I. Although Alvarez is usually referred to as the inventor, Johnston's name appears with his on the patent papers. Neither derive revenue from the patent, as they turned all patent rights over to the Federal Government.

When the instrument was brought to Washington from the Boston Municipal Airport early in 1943, it was damaged because of improper packing. The equipment was set up and presumably ready for its first, important demonstration. But it wouldn't work.

Alvarez and Johnston knew the trouble lay in damage suffered during transit. They promised they could get it working within two days. The delegation returned and the Mark I wouldn't perform. The same thing happened the next day.

The thrice assembled throng was becoming impatient and skeptical. They did, however, give Alvarez a final chance. The fourth try was set for the next day. In that 24-hour period, one of the radar

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search sets guarding wartime Washington against any possible approaching enemy aircraft wasn't in operation but a new contraption known as GCA definitely was.

Under the super salesmanship and diplomatic persuasions of Tasker, the crew operating the search equipment immobilized it by removing and loaning Tasker a couple of radar tubes needed in the GCA set.

The fourth demonstration was a complete success. The AAF officers were so impressed that an order for the purchase of 500 units was issued the next day. But Maj. Gen. (then Brig. Gen.) Harold M. McClelland, chief of the Air Transport Command's radar and radio section and one of the early GCA converts, wanted one more test to amaze his friends.

On the day of the successful test General McClelland wanted to show what pilot behavior would be if the pilot was unfamiliar with GCA. He ordered a colonel at Mitchell Field to fly under the hood to National Airport, with a check pilot, and when 10 miles out to follow implicitly the instructions of a ground controller. When the colonel made a good landing, General McClelland was more than impressed.

Dr. Alvarez soon took the Mark I to England, returning after several months to work on the atomic bomb project.

He never bores anyone with talk about GCA, but he is boyishly enthusiastic and mightily pleased when someone approaches the subject. He always queries them as to whether they've flown GCA and how they like it. He hangs on to their every word to get their reactions. He queries passengers on commercial planes, never identifying himself as the inventor.

Dr. Alvarez thinks his system to land airplanes under "socked-in" conditions is better than other systems—a natural prejudice. He points to its marvelous record of thousands of safe landings and saved lives.

In speaking of the GCA-ILS controversy, he said:

"Pilots flying instruments are in deep visual concentration on the instrument panel. As a psychologist might say, the trunk lines carrying information to the brain from the eyes can become saturated with the ordinary instrument techniques. Addition of another instrument, like the ILS cross-pointer meter, makes the work even more confounded.

"The situation is much like that of a man driving down a crowded road at a high speed. His eyes are busy looking this way and that, and the signals his eyes send to his brain cause his muscles to control the wheel, throttle and brakes in the proper manner. If you asked him at the same time to read and understand a book which was propped over the wheel, he would think you were crazy!

"But without any effort, he can listen to and comprehend completely what is said over the radio. He can do this because there is a separate and unused channel from the ears to the brain.

"GCA makes use of this new trunk line, and its existence is one of the greatest reasons for the success of the system. The pilot can put his full attention on the main set of flight instruments and still can react in a relaxed manner to the spoken direction of the GCA controller."

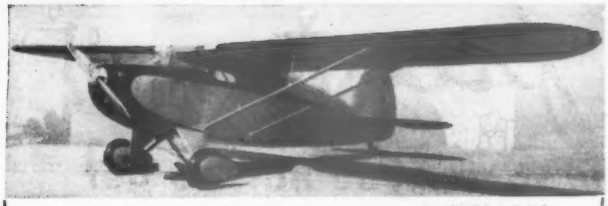
The scientist has one other aerial distinction to his credit. He worked out the pattern the B-29s flew in order to escape the effects of the blast when they dropped the A-bombs.

He learned that the wings of a B-29 were stressed to pull 2½ Gs, or a 67° turn. Anything more violent would crumple the wings. He devised a pattern incorporating a 60° turn, which resulted in a pull of 2 Gs. The turn, although violent for such a big plane, was considered safe by Boeing engineers and later proved practical in actual operation.

Aside from occasional GCA practice landings with the Naval Air Transport Service at nearby Moffett Field, where he is made welcome by his friend, Rear Adm. J. W. Reeves, Jr., NATS chief, and in serving infrequently as an advisor to Gilfillan, Dr. Alvarez is through with GCA.

He is a true specialist. GCA has been developed. There is nothing more to do with it outside of saving more lives and planes, including privately owned craft whose owners can't afford expensive ILS equipment. So he has turned his attention to other scientific pursuits.

The next step in overcoming aviation hazards is to control the weather, he believes. He looks ahead to the time when science can control rain and fog. Then there will be no need for mechanical landing systems for airplanes—even GCA. END



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Here's Your Ground School

(*Continued from page* 51)

airline pilots rating and so on down the line.

Sixty-one of the commercial ground schools covered in the survey offer approved courses leading to an aircraft mechanic rating, while 47 offer courses leading to both an aircraft engine mechanic rating and a combined A&E rating. The survey did not cover another classification —the CAA-approved mechanic schools— of which there were 35 as of January 1, 1947. The names and addresses of these schools, which offer A, E or combined A&E ratings, are listed at the end of this article.

Besides the flying and mechanic ratings, many ground schools offer extensive curricula in general aviation subjects.

In general engineering subjects, for example, 81 teach aerodynamics, 30 aircraft construction, 21 materials, 21 structural analysis, 10 aeronautical physics, nine aeronautical drafting, two wind tunnel operation.

One hundred six give courses in engines, 43 in instruments, 29 in propellers, and the other 24 are in radio construction.

Courses allied to the direct art of flying are extremely popular. One hundred twenty-one schools teach air law and CAR; 183 teach meteorology, 172 teach navigation.

Just a handful teach courses in the management and operational end of aviation, however—a hint to some schools that their curricula are weak. For example, only six schools teach air transportation, only 10 teach airport management, only 16 teach commercial air operations. The first is extremely important to traffic men —especially in the new non-scheduled airlines; the second is probably the most important subject that any man intending to be a fixed base operator could study.

Another discrepancy appears to be the fact that although 203 schools give courses leading to a flight instructor's rating, only 22 offer courses in aviation education. It is quite possible that every flight instructor could profit from a good course in aviation education.

Altogether, 1,535 ground and flight schools have been approved by the CAA. In analyzing this group, FLYING's editors eliminated the more than 1,000 which offered only flight instruction, because they felt that such instruction was so widespread that prospective pilots would have no difficulty finding adequate instruction near their homes.

This elimination left 412 schools which offered basic or advanced ground school courses. Questionnaires were sent to all of these schools and replies were received from 315, while at least another six were out of business. At this point a further pruning took place. About 50 publicly-supported or non-commercial schools, colleges and junior colleges were eliminated, even though they had CAA approval, because they were included in last year's survey. Another 15 were eliminated because they did not show evidence of having substantial ground school curricula.

Strangely enough, there turned out to be a marked concentration of commercial aviation schools in the northeast, southeast, and west. There are 93 basic or advanced ground schools in the northeastern area covered by Region 1, for example, and 125 in the southeastern area covered by Region 2, whereas there are only 13 in the central area of Region 3— which includes the rich flying area of Illinois, Indiana, Kentucky, Michigan, Minnesota, North Dakota, Ohio and Wisconsin.

It is hard to account for this remarkable discrepancy. As of January 1, for example, Region 3 had nearly one-fourth (18,995) of all the private planes in the country, whereas it had less than 1/30 of the approved ground schools. Region 2, with only about 11 per cent of the planes (8,993) had 30 per cent of the ground schools.

As explained earlier, the tabulation did not include the 55 CAA-approved mechanic schools because it was felt that it would be sufficient merely to list them. All give instruction leading either to an A, E or combined A&E license. By regions, they are as follows:

Region 1. Academy of Aeronautics, LaGuardia Field, N. Y.; Airmantech Aviation Mechanics School, Springfield, Mass; Allen School of Aeronautics, Hillsgrove, R. I.; Burgard Vocational High School, Buffalo, N. Y.; Elmira Veterans School, Elmira, N. Y.; Essex County Boys Vocational School, Bloomfield, N. J.; Huntington East Trades School, Huntington, W. Va.; Lock Haven High School, Lock Haven, Pa.; New England Aircraft School, Boston, Mass.; Pittsburgh Institute of Aeronautics, Pittsburgh, Pa.; Putnam Technical School, Putnam, Conn.; Roosevelt Aviation School, Mineola, L. I., N. Y.; Stewart Technical School of Aeronautics, 253-7 West 64th Street, New York, N. Y.; Williamsport Technical Institute, Williamsport, Pa.

Region 2. Embry Riddle Company, Miami, Fla.; Lively Technical School, Tallahassee, Fla.; Memphis Vocation School, Memphis, Tenn.; Palm Beach County Vocational School, West Palm Beach, Fla.; Shelby County School of Aeronautics, Whitehaven, Tenn.; Technical High School, 1410 N. E. 2nd Avenue, Miami, Fla.; U. S. Flying Services, Albert Whitted Airport, St. Petersburg, Fla.

Region 3. Aero Mechanics School, Detroit 5, Mich.; Aeronautical University, Inc., 116 S. Michigan Avenue, Chicago 3, Ill.; Chicago Vocational School, 2100 E. 87th Street, Chicago, Ill.; Currey Flying Service, Galesburg, Ill.; General Airmotive Corp., Municipal Airport, Cleveland, O.; Lewis School of Aeronautics, Lockport, Ill.; Parks College of Aeronautical Technology, St. Louis University, East St. Louis, Ill.; Western Michigan College of Education, Kalamazoo, Mich.

Region 4. Dallas Aviation School, Dallas, Tex.; Isaac Delgado Central Trades School, New Orleans 19, La.; Ouachita Valley Vocational School, West Monroe, La.; Spartan School of Aeronautics, Tulsa, Okla.

Region 5. Aero Enterprises, Inc., Sky Ranch Airport, 625 Mack Bldg., Denver 8, Colo.; American Technical School, Des Moines, Ia.; Brayton Flying Service, Inc., Lambert-St. Louis Municipal Airport, Robertson, Mo.; Emily Griffith Opportunity School, Denver 4, Colo.; Lincoln Aviation Institute, Lincoln, Neb.; St. Louis School of Aeronautics, Inc., Lambert-St. Louis Municipal Airport, Robertson, Mo.; University of Omaha, Omaha, Neb.

Region 6. Aero Industries Technical Institute, Oakland 14, Calif.; Cal-Aero Technical Institute, Grand Central Air Terminal, Glendale, Calif.; California Flyers School of Aeronautics, Inglewood, Calif.; California Polytechnic School, San Luis Obispo, Calif.; Globe Vocational School, Globe, Ariz.; Northrop Aeronautical Institute, Hawthorne, Calif.; Phoenix Technical School, Phoenix, Ariz.; Sacramento College, Sacramento, Calif.; University of Southern California, Hancock Field, Santa Maria, Calif.; Utah State Agricultural College, Logan, Utah.

Region 7. Clover Park Vocational School, Tacoma 9, Wash.; Helena Public Schools, Dept. of Aeronautics and Related Trades, Municipal Airport, Helena, Mont.; Oregon Institute of Technology, Aviation Department, 831 S.E. Sixth Avenue, Portland, Ore., J. M. Perry Institute, Yakima, Wash. END

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The Shape of Wings to Come?

(*Continued from page* 46)

has spent some $200,000 to develop the channel wing, is not a one-man show. His project is a symbol of small-town neighborliness and enterprise.

Backing Custer with cash and enthusiastic counsel are eight Hagerstown men, including his two sons, Harold and Reed. The National Aircraft Corporation has been organized by the group with the purpose of working "toward the development of a light aircraft that will take off and land vertically."

Custer is chairman of the board. President is Frank D. Kelley, the only person in the corporation who flies—a former CPT instructor. He also served as a civilian photographer in Europe during the war and now runs a photographic studio in Hagerstown. Other board members include Albert M. Davis, a grocer; Andrew J. Minalik, a baker; Edward S. Summer, a dealer in wholesale notions; Minor Hudson, Jr., now a lawyer in Washington after three years in the Navy, and Robert E. Gummells of Hancock, Md., who works with Custer in the shop. Hudson, Kelley and Custer's sons are the only young men in the set-up. Custer is in his "late forties," and the rest are near his age.

Best characterization of Custer is his own:

"I'm an automobile mechanic and always have been. I like to do things with my hands. Never learned to use a slide-rule but I'm used to making things run and if they don't I want to know the reason why."

How far his channel wing will run is still a question, but if enthusiasm were fuel it would already be around the world. Custer sums up:

"We want to design a lightplane that will land and take off without a runway. It will cruise at more than 100 miles an hour. It will be as controllable as any other airplane and have the same equipment. Only difference is, you'll keep your brakes on until you're practically airborne. Then you'll release the brakes—and you will be airborne.

"Landing, it will be the same thing in reverse. You'll come practically straight down. When your wheels touch, jam on the brakes. Fifteen feet later you'll be stopped.

"If the engine fails, you will be able to bring it in like any other conventional model, although it will land faster. But you'll still be able to slow it down quickly with brakes.

"And even if you should crack it up, it will not be a major financial disaster. I figure a good manufacturer can stamp out channel wings in wood or metal like hot cakes. Even including engines, a two-placer should cost no more than $700."

How about production?

"Somebody else'll have to do that," says Custer. "Like I said, I'm a mechanic. I want to keep on tinkering and let somebody who knows about it worry over assembly lines."

END

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Report from Washington

(*Continued from page 34*)

about it. Not long ago, the old gentleman, now in his nineties, flew as a guest of the British government from the Mediterranean to the tip of South Africa.

What Stone's attitude on more research in the lightplane field will be may be guessed from some of these items but perhaps the clinching one is this: he's been very active in pushing aeronautical research at Ohio State University, one of the leaders in the research field.

Stunt Hops

By the time you pick this up, the latest *Reynolds Bombshell* flight will be history; and by the time you put it down—could be—a couple of guys will have made additional history in two Piper *Super Cruisers*. Reynolds, as we go to press, has announced a round-the-world flight "over both North and South Poles on a route almost 30,000 miles long." The other two will have finished or be in the process of trying to finish a Piper cruise around the world the more or less normal way.

William P. Odom, pilot of the first *Bombshell*, will pilot the new one. Over the South Pole he will hit the worst weather of the year. Experts who know the Pole, having lived through one of its midnight winters, shudder to think of it. When told this at a recent meeting, after the flight was announced, Odom registered surprise and asked to talk to his informant after the meeting. Press releases announcing the flight said that it would be "for scientific research only."

If Mr. Odom—or Milton Reynolds—are interested, it might be worth passing along that a Navy expedition, replete with airplanes, just got back from the South Pole after four months devoted to such research. It might be added here that the research was done by sincere experts, not publicity hounds.

Pilot Clifford V. Evans and friend plan to fly round world in two Super Cruisers.

Cub Cruise

The other hop, in the Pipers, rings much truer. The pilots are George Truman, 39, with 19 years of piloting, of Los Angeles, and Clifford V. Evans, Jr., 26, a former AAF B-25 pilot, of Washington, D. C. They are planning to fly around the world via the great circle Atlantic route, southern Europe, Cairo, India, Canton, Shanghai, and the Aleutians. It's one of those lightplane pilot's dreams that came true. The boys are from George Brinckerhoff's College Park Airport near Washington, where they were instructors last summer. Like most hangar flying, for a long time it was all talk, and Truman went west. But before he went he asked a student whom he had just checked out for a private ticket if she would try to do something about it.

She was Jane Marilley, a Washingtonian with some experience in aviation writing, and suggested that Evans meet Bill Strohmeier, public relations man for Piper. Bill was at first skeptical, but finally the Piper organization agreed to give the boys two *Super Cruisers*. Marilley, who had organized a small public relations outfit of her own, walked the papers through CAA and the State Department. Visas had to be signed for 17 countries, but CAA and State were both cooperative. The flight was on.

How to Do It

If you're dreaming of flying around the world, here's how the boys figured it before they took off: Fuel cost per plane, $600. Food, unestimated (they figure a lot of people will be glad to entertain). Elapsed time: 45 days (no use bragging; with luck and the seasonal tail winds over the routes they'll follow, they might beat their pre-flight schedule). Longest hop: 1,657 miles over water from Hokkaido, Japan, to Attu in the Aleutians.

This requires extra gas, as do many of the other jumps, so both planes are equipped with two 50-gal. tanks in the back seat—giving the *Super Cruiser* a capacity of 138 gallons. Instruments: all Kollsman except for a Sperry gyrosyn compass and a Sperry gyro horizon. The planes also have 100 h.p. Lycoming engines and McCauley metal props.

Clothes: coveralls for flying, one light suit, two pairs of shoes and socks, one pair of wool trousers, two of cotton, two cotton and one linen shirt, one GI raincoat. . . They plan to have fun and do some visiting along the way. For instance, Evans has been sending food to a couple of Dutch kids about the ages of his own and plans to spend some time with them when he's in their country.

Saucers

The flying saucers, which so many persons thought they saw, will probably be a pleasant summer memory before this gets into print, but a couple or three unpublished Washington items regarding the alleged phenomena may be worth recounting. Wags at the Civil Aeronautics Administration scoffed at the saucer idea. Said they had checked their certifications

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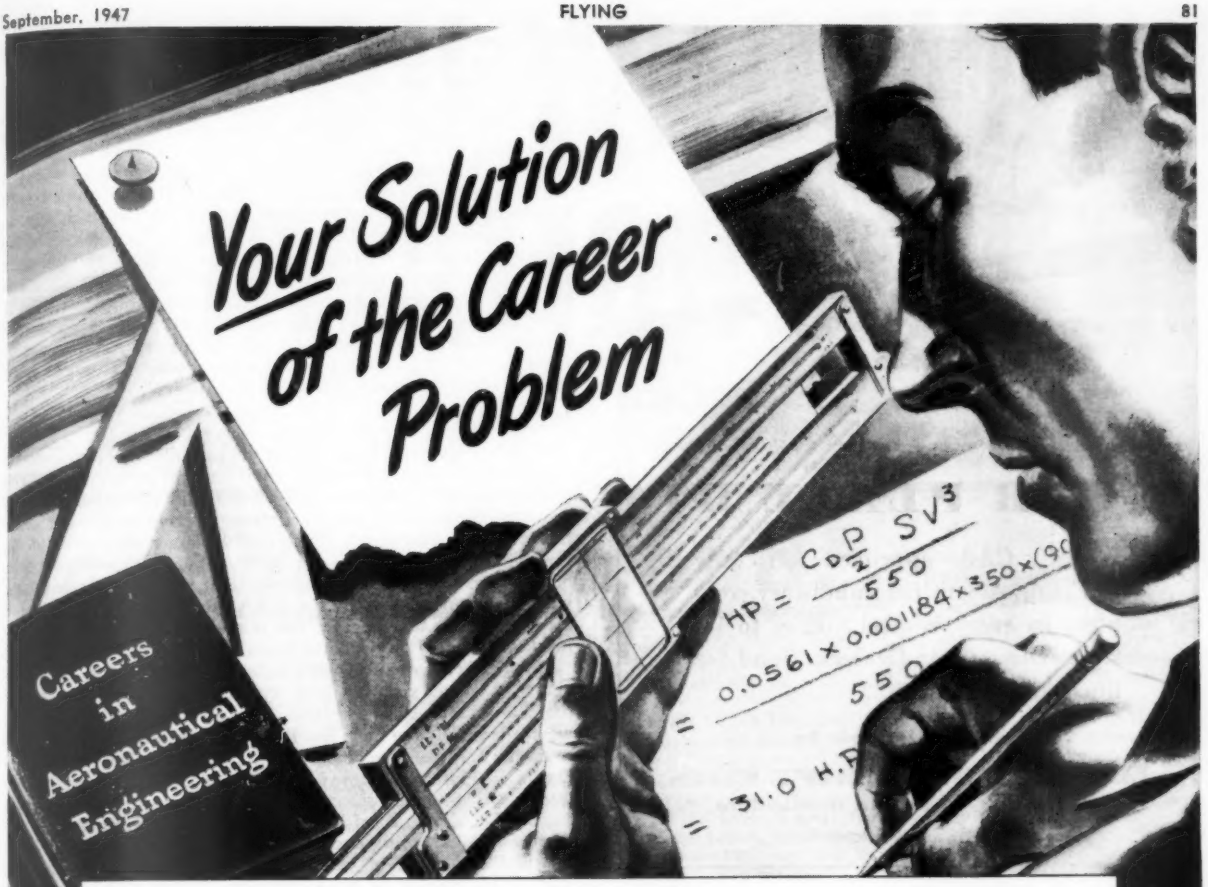

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and licenses and had no NC or NX number for a single saucer —and how could anything fly without CAA okay? . . .

Then there was the saucer that the crew of a Navy LST cruising in the Chesapeake saw sailing down toward them. Everybody laughed—until the saucer made a square hit and a large hole in the forward deck. Shortly afterwards, a Navy seaplane landed alongside and a commander asked them if they had been hit by something. The LST crew replied with considerable enthusiasm, but the commander went calmly on with his questioning. Damage? A hole in the deck, nothing serious. Anybody hurt? Nobody. The commander explained that some of his boys had been fooling around with 10-pound practice bombs and had inadvertently dropped one on the LST. The LST crew were so astounded at his calm commander manner they were speechless. At his last words they nearly fainted. "Sorry," he concluded cheerily, adding: "Thought you'd like to know it wasn't one of those saucers."

WAA Finale

WAA. except for these minor items still on the shelves, is about ready to fold its aircraft division, and proud of it. "The surplus airplane program," an official said the other day, "is the first major WAA sales activities to have sold itself practically out of business." Some 65,000 planes were sold, 35,000 for civilian flying, 30,000 for scrap. . . Happier than War Assets officials are manufacturers both of light planes and transports, who were handicapped by the WAA sales, and will be haunted for some time to come by the planes that were put on the market, some driving private flyers from the market in disgust.

Meanwhile, if you still want to buy a *Constellation*, there are a few old ones you can pick up for a mere $20,000 each at the War Assets Administration. There were six left, last time we checked. Three have been sold so far, one to the Lockheed Aircraft Service, Inc., of Burbank, Cal., for $40,000, two to Darius V. Phillips, one for $40,000, the second for $20,000. Needless to add, the two top-price planes were in the best shape of any at WAA, and all of the offerings will need something like a million-dollar going-over to be made serviceable. Mr. Phillips and a number of veterans have chipped in and hope to use the big fellows for world cruises. . .

Landing System

R. C. Shrader, vice president in charge of operations of Braniff International Airways, has testimony on the Civil Aeronautics Administration's instrument landing system (ILS):

"Our pilots took to ILS approaches like ducks to water, and there is every indication that they are fully confident that entirely safe landings can be made with minimums of two hundred feet and one-half mile."

Braniff was the first airline to get CAA authorization for lowered minimums using ILS, in mid-April. Shrader thinks it is paying off. "One Braniff and one Eastern flight," he relates, "were both approaching San Antonio under weather conditions of minimum regular range approach ceilings the other day. Just prior to arrival, the ceiling lowered. Our flight landed easily with ILS. After circling San Antonio a few minutes, Eastern's flight had to return to Houston, as the ceiling gave no indication of lifting to permit a standard approach."

He goes further: "We expect, with ILS, to be able to complete at least half of the flights which would be cancelled under standard minimums."

Co-Pilot

In a world which sometimes seems filled with bite-hungry fixed-basers, it is good to see that, once in a while, somebody comes out with an idea deliberately designed to help lightplane pilots. Best current example of this trend is a booklet called "The Esso Co-Pilot," put out by Standard Oil of New Jersey. It lists all airports marketing their products, plus information on the type of field, service available, air mileage charts, CFR, traffic signal code, weather symbols and phrases. In the booklet's pocket is a flight calculator and a cross-country memo card.

Transport Tussle

Competition is blooming in the transport field, writes our West Coast seer, Gaither Littrell:

"Yesterday afternoon at Lockheed Air Terminal I was one of several hundred people who saw a terrific, almost straight-

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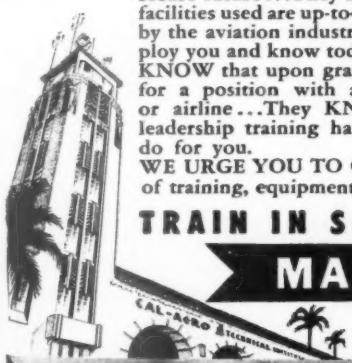

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up take-off of a United Air Lines DC-6. From the end of the runway to the time the plane was over the Terminal building, a distance of about 5,000 runway feet, it had climbed seven or eight hundred."

Reason: A delegation from the Scandanavian airways system was shopping for transports, and had flown up from Douglas at Santa Monica to Lockheed in the DC-6. They were guests at lunch with Robert Gross, president of Lockheed, who has a pardonable interest in selling *Constellations.*

The DC-6 boys waited till the guests got to the terminal's Sky Room and began admiring the view. Then they pulled their stunt. The pilots, incidentally, were Larry Peyton and Frank Boyer, and had the satisfaction of learning that the Scandanavians watched the climb with open mouths. Larry said his rate of climb was 2,500 f.p.m.

Catapults for Jets

Future Army planes are being stressed for catapult operation from either land or carrier. AAF has approved catapult installations on prototype planes, with a few exceptions. Catapult installations are necessary for all new jet planes operating from carriers, and the new order will permit experimental AAF planes to be tested by the Navy before production is ordered—and thus may allow combined Army-Navy orders for certain models. The Navy Bureau of Aeronautics has asked for drawings and data on the P-82, P-84 and P-86. END

DO YOU KNOW..?

TEST your aviation I.Q. with this quiz by G. Sidney Stanton of the Civil Aeronautics Administration. Here's how to score yourself: 100 per cent and you're an airline pilot; 90 per cent and you're a flight instructor; 80 per cent, commercial pilot; 70 per cent, private pilot; 60 per cent, student pilot; 50 per cent or less, you're a Dilbert.

1. When an airplane is in a glide the air produces an upward force on the wings and a downward force on the tail. (*True . . . False . . .*)

2. An airplane which will fly "hands off" in cruising flight will tend to turn to the left when climbing and to the right when gliding. (*True . . . . . False . . . . . .*)

3. When the aileron control is moved to the left, the left aileron moves down and the right aileron moves up. (*True . . . . . False . . . . . .*)

4. When taxiing downwind in a light airplane, the airplane can be turned to the right by moving the aileron control to the right. (*True . . . . . False . . . . . .*)

5. When taxiing with a strong cross-wind to the right, the aileron control should be moved to the left. (*True . . . False . . .*)

6. Serious carburetor icing is very likely to occur when the outside air temperature is below 15°F. (*True . . . . . False . . . . . .*)

7. Serious carburetor icing is extremely unlikely when the outside air temperature is above 40°F. (*True . . . . . False . . . . . .*)

8. In a steady steep climb, the lifting force exerted on the wings of an airplane is no greater than in level flight. (*True . . . . . False . . . . . .*)

9. A high-powered airplane can maintain altitude in a 90° bank (vertical bank) for an indefinite period of time. (*True . . . . . False . . . . . .*)

10. If the rudder should become disconnected in flight, it would be practically impossible to maneuver the airplane for a landing. (*True . . . . . False . . . . . .*)

11. When a pilot wishes to descend for a landing, he ordinarily reduces power (throttle) and moves the elevator control slightly forward to establish a gliding angle. (*True . . . . . False . . . . . .*)

12. If the ignition system is operating perfectly, the engine should deliver the same rpm whether operating on one magneto alone or on both magnetos together. (*True . . . . . False . . . . . .*)

ANSWERS ON PAGE 94

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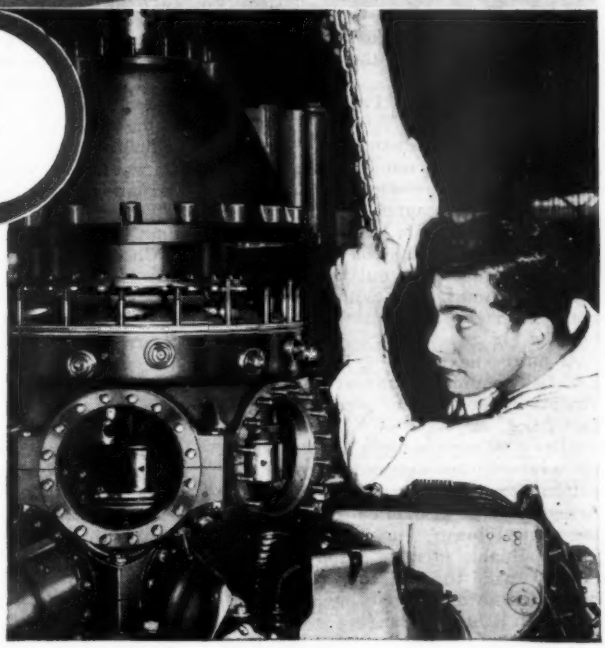

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The Airplane Goes to Press

(*Continued from page 25*)

next morning was the answer. So staffs of both papers were briefed by managing and executive editors with these instructions:

"Staff cars with three reporters and three photographers will leave immediately. Phone everything available for midnight and early morning editions of the *Tribune*. Shoot pictures at daylight and have them at Wendover air base, 12 miles from the wreck, by 8:30. Halliday will land there, pick up a photographer and all the plates, buzz the wreck for some air shots and fly them back here in time for the *Telegram* noon edition, and for distribution over the AP wirephoto network. That's it."

"How long will it take for a flight to Wendover and back?" the editor asked, turning to me.

"About three hours," I said, "but I can't land there."

"Why not?" he demanded.

"It's a hush-hush military danger zone. They're sensitive enough to shoot and I'm allergic to shrapnel."

"Forget it," he said, with that power-of-the-press tone in his voice. "We'll clear it with the base. Be out there at 8:30. Pick up Brandt Gray with the ground photos, get the air shots and be back here by 11."

At sunrise next morning I took off from Salt Lake municipal airport in a 65-h.p. Taylorcraft and headed west over Great Salt Lake.

After a 90-minute flight, I tuned in the radio receiver and dropped down into the pattern of huge, sprawling Wendover Army Air base at 8:15 a.m. Glancing at the control tower, I caught a red light signal. Unable to raise a sound on the radio, I made three circuits of the field before the tower finally came across with the green light for a landing.

After tailing a uniform-filled jeep from the runway past long rows of medium and heavy bombers and some *Mustang* fighters to the operations office, I cut the motor and jumped out to meet Brandt Gray, our staff photographer, waiting on the ramp with a lieutenant.

"Who told you you could land here?" the officer asked.

"The *Tribune-Telegram* obtained clearance."

"I haven't seen it," he said. "Come inside, the tower wants to talk to you."

Hurrying inside I was handed a telephone connected with the tower.

"Are you the jockey for that grass hopper that just lit?" the operator asked.

Getting an affirmative he shouted, "What the hell's wrong with your radio and what makes you think you can flit around an Army base?"

"Evidently out of order and the landing should have been cleared," I replied.

From the ensuing tirade I gathered that no clearance was evident, I was risking penal servitude, he had shouted himself hoarse while I was in the pattern, he only let me down as a last resort and there'd be hell to pay when the C. O. heard of it. He wound up with a sweet, "and how long are you planning to visit?"

"I'm ready to leave now," I assured him.

"Check that radio on the way out. If it still doesn't talk, watch the lights," he ordered and hung up.

The lieutenant at my side handed me an arrival slip, departure slip and flight plan sheet.

"Can't you make a notation that I'm illiterate and skip these," I pleaded. "We're in a hurry."

"Fill in your name and pilot license number and I'll fix the rest," he said graciously. "Do you need any gas?"

"Will it involve writing to my congressman?" I asked cagily.

He smiled and shouted out the door, "Sergeant, get an eye-dropper and fill his tank."

A tank truck three times the size of the Taylorcraft rolled up. A G.I. put the nozzle in the tank spout of the plane and then hesitated. "I'm afraid to pull the trigger for fear I'll wash your put-put away before I can get the flow stopped. This hose throws 115 gallons a minute. How many will it take?"

"About nine gallons. Try a five-second burst," I suggested.

"See what I mean?" the G.I. said, as the five-second burst filled the tank and gas cascaded over the cowling.

Gray and I jumped in the plane and as we started to taxi out the lieutenant ran up with a paper in his hand, stuck his head in the door and said, "Your clearance to land just came through."

Rolling out to the runway behind the ever-watchful jeep, we checked our radio and got the tower loud and clear. Ten minutes later we were over the crash site. Scores of people were walking around, probing the jumbled wreckage. Most of the cars were piled in one conglomerate heap. Others sprawled across the three demolished houses. It seemed a miracle that only two persons had been killed and 30 injured at that scene of devastation.

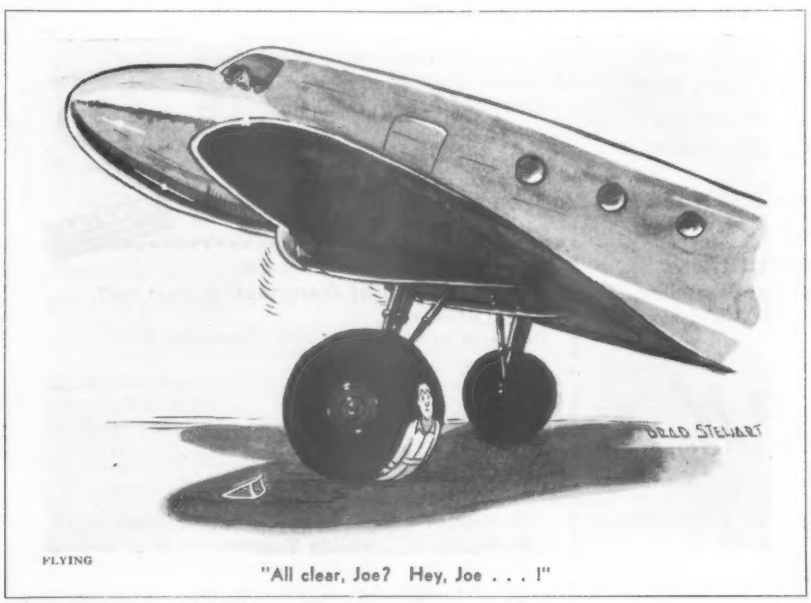
Gray was using a 4x5 Speed Graphic, workhorse camera of the press. Although specifically designed for close work on the ground, this camera is ideal for aerial shots where the subject is large, such as forest fires, towns and factories. From an altitude of 1,000 feet the wide-angle, six-inch lens will take a good, sharp picture covering an area about the size of four city blocks, but therein lies its disadvantage for small objects such as the train wreck. From 500 feet the wreck would be too small on the negative to show any detail, involving excessive enlargement and resultant blurring. Our only course was to drop down within 150 feet of the scene. The surrounding area was flat and clear, suitable for any possible forced landing.

With the camera set at infinity, 400 front shutter speed and f-8 lens opening, Gray raised his window, which was held up by the slipstream, and we started figure eights over the wreck. My role on each run was to sight forward over Gray's shoulder and frame the wreck in the triangle formed by the wing strut, the wing and the fuselage.

After 10 shots we headed east for Salt Lake City, landing at 10:50 a.m. We rushed the photos by car to the office, barely making the 11 a.m. deadline. By noon the *Telegram* was on the street with exclusive aerial pictures of the wreck, which were being flashed nationwide—a silent accolade to the light-plane.

Tribune-Telegram plane coverage has been in a three-year process of evolution. The Taylorcraft and Cessna 140 made first team by out-performing and underselling the traditional auto-bus-train triumvirate. Airplanes have shrunk the four-state circulation area 50 percent, increasing the scope of coverage by the same amount.

Pocatello, Ida., 176 road miles north of Salt Lake City, is 3½ or 4 hours away by car, costing $24.64 round trip at 7 cents per mile. Because of the early Idaho edition deadline, Pocatello football games were out of the question pictorially until one Saturday afternoon



"All clear, Joe? Hey, Joe . . . !"

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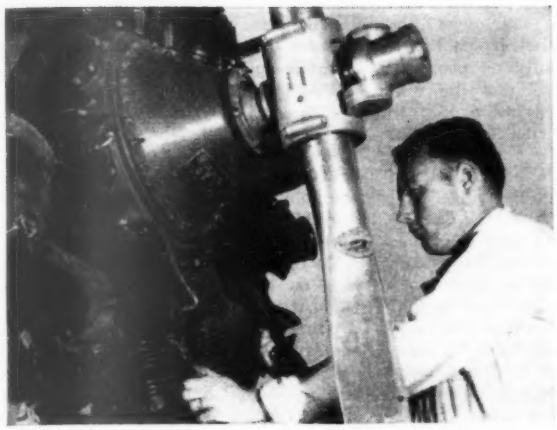
MOST WANTED MAN

One Year From Today? . . . or Out of a Job?



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the Cessna flew some action photos of the day's game to Salt Lake in 90 minutes at a round trip cost of $12. Results: added goodwill in a sports-minded city and a sports editor sold on plane economy and speed.

In another case, a military guard went berserk and turned his machine gun loose on a camp full of sleeping German war prisoners, killing several, near Richfield, Ut., 167 road miles south of Salt Lake. Both a car and the Taylorcraft were dispatched to the scene. Taking seven hours round trip, the auto cost was $23.38. The plane cost was $10.50, including depreciation and overhead, and the flight took only 3½ hours. Without air delivery the pictures would have missed early editions.

Transportation from the airport to the story and back is actually no problem. The magic word "press" and the universal enthusiasm for aviation join to place any citizen's auto cheerfully at our service.

When John L. Lewis called off the most recent coal strike, George Bettridge, staff photographer, and I flew to Carbon County, rich coal mining area 100 miles southeast of Salt Lake, to bring back pictures of resumed mine production.

Unable to spot any loaded rail cars at Price, Ut., only airport town in the area, we flew to a small mining town 50 miles farther on. The pastures looked muddy, so we landed on a straight stretch of highway five miles out of town. Within five minutes a farmer driving by saw the Taylorcraft on the side of the road and stopped his pickup truck.

"Anybody hurt?" he queried.

Being reassured, he said, "Mean to say ya set that thing down anywheres?"

"Just about," we said and asked for a ride into town.

He drove two miles out of his way to take us to the mine.

After taking pictures, we returned to the road to thumb our way back to the plane. A school bus, packed with first-graders, stopped and let us squeeze in. Hearing our story, the driver said he would like to take us out but was hesitant to drive that far out of his way with his youthful charges, offering to drop us off at the crossroads three miles from the craft. That was swell with us but the 30 listening children set up a clamor, demanding to see the plane and watch it take off. The driver grinned, admitted he was outvoted and drove us all the way out.

He parked his bus crossways a mile up the road and stopped traffic to keep the way clear for our take-off. Wheeling the plane out on the highway, we soared into the air and dipped our wings as we flew over the bus, getting an enthusiastic response from 30 wildly waving little hands.

On the premise that a good picture can tell more than a column of type, the plane is sent out at frequent intervals to keep photo files up to date. Huge Geneva Steel plant at Provo, Ut., recently sold to U .S. Steel Corp. by WAA, can be pictured only piecemeal from the ground. From 1,000 feet up, a Speed Graphic negative shows the whole immense installation.

Alta and Snow Basin, Utah skiing resorts, don added depth and grandeur in overall air views. Given a vantage point at 3,000 feet altitude, a 4x5 print reveals the complete valley panorama in a black and white contrast of ski lifts, lodges and pine trees.

To bring up smaller objects, a 15-inch lens on the speed graphic will enlarge the subject almost three times the size produced by the regular lens, taken from the same safe altitude.

In addition to photography, news hunts, and personal transportation, our present Cessna makes small bundle deliveries when snow-clogged mountain passes tie up truck runs.

Proving feasibility of "bundle bombing" for emergency deliveries to towns without airports, John W. Gallivan, *Tribune-Telegram* promotion manager, dropped five 30-pound bundles of papers out of the Cessna from 500 feet into a barren field. The bundles were bound variously with single, double and triple wire, single and double rope tied each way. Result: wrappings torn, three single wire strands broken, all bundles still intact, papers undamaged.

The airplane appears to be selling itself to the newspaper industry. More and more publishers, in their quest for speed, photo originality and general transportation utility, are finding the lightplane a triple-threat player in this highly competitive game. END

Flying Taxis

(*Continued from page 40*)

transportation would still be required.

The air trip cost Randall 15 cents per mile and he would have to pay a round trip fare if another passenger is not picked up at LaGuardia. At that particular field there is the additional cost of $2.50 for landing fee, thus bringing his cost to $19. But if Randall had another friend along they would split the cost, bringing it down to $9.50. And if they landed at any of the other major airports, with one exception, the price would have been lower because of no landing fees.

Father of the Taxicub idea is M. S. "Mose" Hutchins, one of the three brother partners in a Rochester, N. Y., advertising firm which handles the Piper account. Hutchins suggested the idea to a group of Piper distributors at Lock Haven, Pa., last March. It has been received enthusiastically, and by the end of this year the 1,500 Piper dealers in the 48 states, Alaska, Hawaii, and Puerto Rico plus several foreign countries, will be at your service with their *Super Cruisers* sporting the gleaming red letters "TAXICUB" on their fuselages.

Piper is supplying the dealers with stencils, posters, postcard advertising, and is aiding 50-50 in a general advertising campaign. He hopes that in another year *Taxicub* may be as much of a household word as Frigidaire, which incidentally, Sam Randall sells. END

Missionairmen

(*Continued from page 22*)

training center—the larger the better. As a part of this effort he wrote a prospectus and sent it to MBI at Chicago.

Impressed by the presentation, Institute officials asked Robinson to come to Chicago and make a survey of the possibilities of setting up a missionary flight school there. They wanted information only; they made no promises. But after his study was completed, Robinson was speedily scheduled for an appearance before MBI's board of trustees.

"I spent more time on preparing for that final board presentation than I ever have on a sermon," Robinson says. "Those MBI men who gave the final answer are not preachers but established middlewest businessmen. When they called me into the board room at 3 p.m. on April 15, 1946, they were all set to break down my plan and examine each part of it in detail. They asked questions, talked among themselves. Finally, one member stood up and said:

"'I don't know about you gentlemen, but I'm all for it—I'll buy the first two trainer planes myself.'"

Within the next few days, Robinson assumed the role of MBI's Director of Missionary Aviation Courses. Two Piper 65-h.p. *Cubs* and a Piper *Super Cruiser* were ordered and contracts were let for the quonset-hut construction of a combination office, hangar and schoolroom at the Elmhurst (Ill.) Airport. All were to be ready for use by June 1.

Robinson's inital survey quickly proved its value. For $10,000—a very small initial investment for starting a flying school—he had a hangar for four planes, a 14 x 16 office and a classroom the same size, and the three planes. The school rented the land on which the hangar stands from the Elmhurst Airport at $10 per month per plane. All maintenance, gas and oil supplies are obtained from the airport which has granted full use of the airport's other facilities.

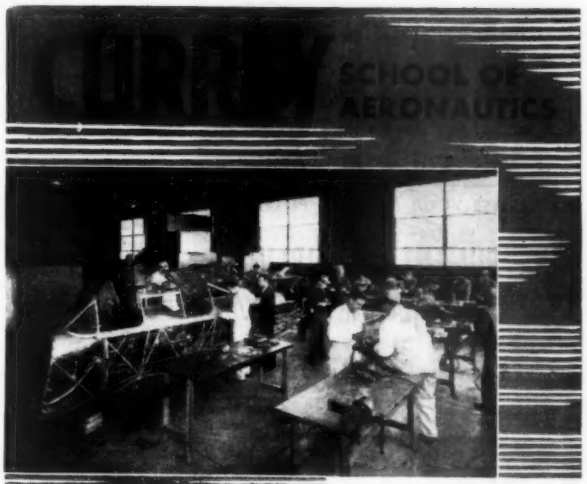
Students were no problem. More MBI mission trainees (both men and women) put in applications than could be handled, but Robinson weeded the list down to 20. Unless the student could use an airplane to advantage in his chosen mission field, the school wouldn't train him. In India, for instance, a plane is impractical. The people the missionary wants to reach walk right past his door. And in certain mountainous sections of South America there are few clear spaces level enough for even a lightplane to land and take-off.

The Moody schooling, by all flying-cost standards, is cheap. Time in the 65-h.p. trainers is $3.50 an hour. It costs $5 per hour to fly the *Super Cruiser* and a 150-h.p. Stinson *Voyager* costs $6 an hour. Reverend Robinson makes no charge for his personal instruction either aloft or on the ground.

In the 50 hours of flight training the school requires, Robinson teaches his students enough to earn their private flying license and more. Knowing that smooth airports with long runways will be rare in the mission field, he specializes in take-offs and landings in minimum spaces. His students also must be able to find cross-country objectives with pinpoint accuracy and must be skilled at making landings in small rough fields. Navigation is stressed more than with the ordinary private pilot. Because some mission fields lie in the far north and others where climatic conditions are unfavorable, a Link instrument trainer has been purchased and instrument flight training is offered.

Even after earning his private license the student is not graduated. Careful records are kept on all of his flying, his ability and his advancement. When he graduates from the other MBI mission-training courses, a flight-training report is included in his papers to his mission board. The report tells the board of the student's capabilities as a pilot and offers suggestions as to selection of an airplane for his mission.

There is no specially designed missionary airplane, Robinson explains, but a successful missionary airplane must have certain characteristics depending on the area where it will be based. First, it must be made of fabric because in emergencies fabric can be replaced on the spot by almost anyone with a patch of cloth and a pot of glue. A metal airplane needs a metalsmith and new metal. Again, the airplane must have a high wing. Low-wing aircraft are apt to strike stumps and posts that a high-wing plane would miss. The missionary's plane also must be able to take-off and land in minimum dis-



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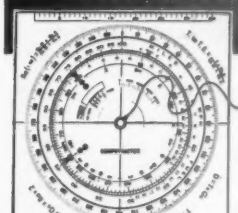

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tances at slow speeds. Missing from the missionary flight training course at present is a mechanic's course. The students could go to regular established schools and become graduate aircraft mechanics, but these schools would take too long a time for too thorough training. Robinson says he wants "Model-T mechanics" knowing enough to make minor repairs which would keep their planes flying. To give that sort of instruction, Robinson has engaged the services of Grant Wood, one of his own pupils. An A&E mechanic, Wood will instruct fellow-students in fix-it-yourself techniques until he leaves for his own post in the Amazon River area. Every once in a while the missionary could fly his plane to "the outside" where experts could do major repairs.

From the plans openly discussed around the MBI hangar, it would seem that Robinson and his missionary flight-training program are just getting started. He knows that there will be many changes in instruction and in operation. Students, he knows, will write back and tell him of training they should have had and didn't get and his courses will change. He expects to learn a lot from his students. In the meantime men he trained to fly will be carrying their log books—and a Bible—to the remotest corners of the world—one of them to a spot in Brazil to which a mission board once told Robinson he was too old to go. END

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THE control tower was quiet that afternoon. Suddenly, crackling over the radio, came an urgent voice:

"Control tower, this is local plane 70303. I'm out of gas! I am now at . . ."

The super-efficient control tower operator interrupted him: "Hold everything! Keep calm!" The operator placed emergency calls for the field ambulance and the fire department. He placed a full alert on the field.

Then he rushed back to the mike. "Local 70303, this is the tower. The field is clear. Give us your position."

Calmly, the pilot's voice came through the radio:

"Tower, this is local 70303. I'm sitting here in front of the tower. When you going to send that gas truck?"

—Dave Williams

THE cocky young pilot, bound across the South Atlantic, retracted the A-20's wheels on the take-off from Natal. With a roar, the plane gained altitude slightly, then slumped sickeningly and ground into the runway with the tip of one prop. The propeller beat a humming tatoo.

His eyes closed tightly, the Douglas Havoc's radio operator waited for the crash. Nothing happened. He opened his eyes, and saw nothing but blue Atlantic stretching ahead.

The sergeant called the pilot via intercom: "Sir, our props bit into the runway on take-off. Don't you think we should go back?"

"Hell, no," snapped the lieutenant. "Let 'em fix their own runway!"

—Fred C. Myers

THE Flying Fortress was having a rough time over Nazi Germany. Flak buffeted the plane, and the crew wore their steel flak-suits.

The inevitable finally occurred. A burst caught the Fort's nose, in which rode a navigator-hating bombardier. He was hurled backwards, literally into the lap of the surprised navigator.

Apparently seriously hurt, the bombardier lay inert. The navigator—who despite his comrade's lusty dislike was a decent chap—acted hastily, stripping off the cumbersome flak-suit in order to administer first aid.

Just then, the bombardier—who had been only temporarily stunned—opened his eyes. "Why you dirty . . ." the bombardier began. He directed choice phrases toward the navigator.

The navigator was shocked. He indignantly informed the bombardier that he was only trying to save his life.

"Save my life, hell!" roared the bombardier. "You didn't even wait till my body was cold before you stole my flak-suit!"

—Fred O. Koger, Jr.

The Goodyear GA-2

(*Continued from page 54*)

out when not accompanied by a qualified pilot. One of the most important parts of the agreement is that each operator must write detailed and elaborate reports on everything pertaining to the GA-2 he is using. Aside from this agreement, though, the operator is free to use the airplane just as though it were his own.

Obviously, Goodyear is going to find all the bugs in the GA-2 that it can. The field-test program will be under the direct supervision of Arthur E. Chapman, who was Goodyear's engineering test pilot during the war. He will shepherd the 10 amphibians around the country and will be in charge of the five that will be used for further tests at the factory.

When this elaborate program has been completed, and when sales experts have turned in their report on the possible market for this plane, Goodyear Aircraft officials then will make the final decision as to whether or not the GA-2 will be put on the market.

The *Duck* I flew for this article was NC-5500M—first of the production models. It was 76 pounds overweight. Normal gross weight is supposed to be 1,450 pounds, but this airplane weighed 1,526 pounds fully loaded. In all the *Duck* flying I did at Akron, the plane carried its maximum of three persons; two in front, one in the single back seat.

Taxiing on the ground is an interesting experience all by itself. Art Chapman has flown *Ducks* so long he knows how to get the ultimate performance at all times. Under his guidance I found myself taxiing Chapman-style: if you must taxi more than a few feet, don't bother with the laborious business of creeping along, kicking the tail from side to side. Just give her a little throttle, get the tail off the ground, and go where you want to at 30 or 40 m.p.h. Ground maneuverability is so good you need not fear such antics. As you approach your destination just ease off on the throttle, let the tail settle, and brake to a stop. Of course, such maneuvers are not for the 10-hour pilot, but it can be done—and safely—with this amphibian, though I'd be afraid to do the same thing in a lot of personal planes.

GOODYEAR GA-2

Approved Type Certificate No. 784
One 145-h.p. air-cooled Franklin engine

Wing span	36 feet
Length	26 feet
Height	9 ft. 4 in.
Gross weight	2,200 pounds
Empty weight	1,450 pounds
Wing loading	12.3 lbs./sq. ft.
Fuel capacity	30 gallons
Top speed	125 m.p.h.
Cruising speed (60% h.p.)	110 m.p.h.
Range fully loaded	300 miles
Service ceiling	12,000 feet
Rate of climb	600 f.p.m.

Source: Goodyear Aircraft Corporation.

The GA-2 flies very much like the Stinson *Voyager*. It is quick on the take-off. In its overloaded condition, NC-5500M climbed 665 f.p.m. shortly after take-off.

It is extremely sensitive on the controls; over-controlling was the greatest single problem I had with this particular airplane. The elevator and rudder are particularly sensitive. Once I became accustomed to them, though, the GA-2 proved to be unusually easy to fly, especially cross-country.

Maneuverability in the air, consequently, is excellent. Your first impression is that, because this is a good-sized flying boat, you've got to maul the controls to make it do what you want. That's where I ran into the overcontrol problem. And one particular feature proved a pleasant surprise: when you throttle back the engine, the nose stays right where it was all the time. There's no sudden drop into a steep glide. This is especially welcome while in the airport traffic pattern approaching for a landing. Just throttle back and the airplane continues its glide around the pattern. Only noticeable difference I found between this and other light aircraft in this respect is that the Goodyear amphibian does have a slightly greater rate of sink.

The stall (wheels down) is gentle enough to keep even the most nervous private pilot happy. At about 55 m.p.h. indicated the nose drops just below the

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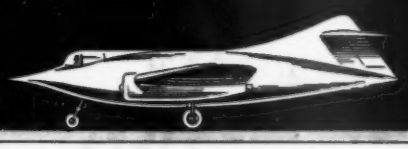

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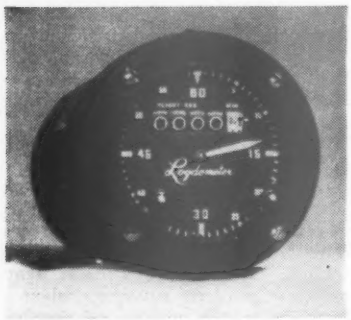

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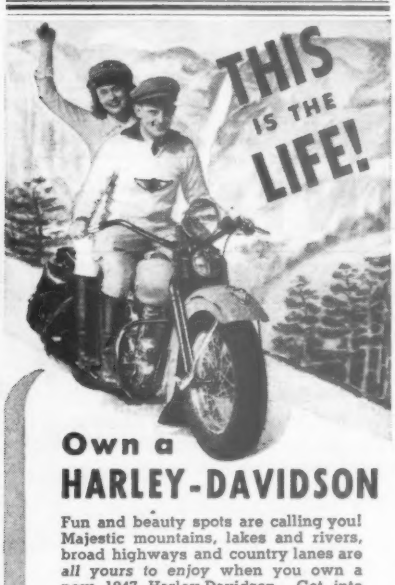

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horizon and the plane quickly picks up minimum flying speed. There is plenty of aileron control throughout the stall because of the wing-tip slots. Incidentally, this airplane does not have a flap. One was tried on the experimental ship some time ago, but Chapman and the Goodyear engineers found it wasn't worth the cost and weight.

The GA-2 is just as pleasant on water as it is on land. There are none of the unpleasant tricks that might be expected from flying boats; the hull is an NACA design. Maneuverability on the water is satisfactory, although the airplane could well do with a reversible propeller. It does have retractable rudder, which is some help. But we had quite a time easing the plane up to a rocky shore on a lake outside Akron.

The take-off from the water is as simple as it is on land, although it takes a bit longer. I got it off the water in an average of 30 seconds for several take-offs. With very little instruction from Chapman I managed some fairly presentable take-offs. But not being a "boat pilot," I was pretty clumsy at it. The take-off technique is simple: give the GA-2 full throttle, hold the wheel full back until the airspeed reads 60 m.p.h., ease the wheel forward to let the plane ride on the step, then ease it off. Aside from that, it's very much like a land take-off.

Water landings are easier. Just make the normal approach, checking wind direction by the wind lines on the surface. Hold it just off the water at about 65 m.p.h., then let it settle itself onto the surface. Once you get used to the sudden splashing and rapid deceleration when the hull sinks into the water, it's really quite easy.

The GA-2 is quite pleasant for cross-country flying. I was able to fly this particular ship from Akron to the Aeronca factory at Middletown, O., a flight of 185 miles. I made the entire flight at 2,000 feet above sea level, with a head wind that averaged about 13 m.p.h. Despite the fact that the air was rough, and that I was totally unfamiliar with the airplane, I made good a ground speed of 97 m.p.h.

Normal cruising horsepower (about 87 h.p. at 2,425 r.p.m.) was used throughout the flight. Indicated air speed stayed between 115 and 120 m.p.h. But this cross-country flight emphasized one fault I would find with this airplane: it's too noisy. The 145-h.p. Franklin is on a pedestal just above and behind the cabin, and turns the Aeromatic propeller at high r.p.m. The cabin of this particular airplane didn't seem to be too well soundproofed—and I'm allowing for the fact that I made most of the flight with the cabin window open. It was pretty hot inside, largely because the overhead windows are clear plastic, and the sun quickly makes an oven of the cabin. I understand Goodyear plans to use colored plastic in the next production airplanes.

In level flight, the visibility is excellent. Until you get used to it, the GA-2 seems to be in a shallow glide when it's actually flying level. That optical illusion, caused by the slanting nose of the hull in front of the windshield, added to my troubles in trying to trim the airplane for level flight.

The trim tab handle for the elevator is very much like that on the *Navion* and *Bonanza*. There's a ridged wheel in the center of the lower edge of the instrument panel.

The general interior of this airplane is well done. The seats are unusually comfortable. The back seat is in the center of the cabin, with one of the retractable-gear's wheel wells on each side. The person riding in that seat can see forward quite well, but not too well out the sides. The wheel wells (they're comfortably padded) right beside him give the third passenger something to lean against.

The instrument panel is simple and handy. The dual control wheels project from a sort of shelf that juts back toward the front seat from the windshield. The instruments are mounted on the face of that shelf. But the shelf itself is just a bit low; I bumped my knees on it a few times until I moved the adjustable seat back enough to straighten out my legs.

The landing gear and tail wheel are operated electrically. There is a small toggle switch on the instrument panel, protected by an ingenious pair of safety catches. The manual crank for landing gear emergencies is mounted on the cabin wall just behind the co-pilot's seat.

The one cabin door is on the right side and opens forward, automobile style. There is a hatch on the left side so that the pilot can climb out onto the nose of the hull to handle the mooring line. There are sliding windows on both sides of the cabin.

In its present state, the GA-2 is stressed for engines as high as 185-h.p. A CAA inspector with whom I talked at Akron said this airplane comes as close to meeting Army-Navy strength requirements as any personal airplane he has seen. Whether or not all that added strength will be justified in a production version of this airplane remains to be seen. But if Goodyear ever does decide to go into production, the GA-2 will have to be lightened considerably and many corners will have to be cut so as to shave costs.

Though the amphibian is a production airplane as it now stands, Goodyear engineers are still experimenting with it. One *Duck* has been fitted with the Goodyear cross-wind landing gear, and tests so far have proved satisfactory. Then there is the possibility of modifying one of these planes by burying the engine in the hull, driving the pedestal-mounted propeller with a shaft.

Generally speaking, the GA-2 is a tribute to the men who designed and built it, particularly J. Byron Jones, the original designer. Jones had much to do with the design of Ray Applegate's amphibian, which Piper once considered building; the Goodyear and Applegate designs resemble each other somewhat.

Meanwhile, as that limited production for the field test program gets under way, Goodyear is on the lookout for a popular name for the GA-2. (Grumman has prior claim to the name *Duck*). At last reports they were planning a contest among their employes.

MAX KARANT

I Learned About . . .

(Continued from page 56)

evening (7:26 p.m.), it made little difference. Down under, the sun was in the sky 24 hours a day. We operated on what is called Zero Time, to a degree an arbitrary time, which is Greenwich plus 12 hours.

So, despite the hour, visibility was reasonably good. We could see the last plane take off ahead of us, piloted by Navy Lieut. George E. Anderson. We checked command and liaison radio twice. Okay. The engines were revving comfortably.

Frankly, we anticipated no difficulty on the hop down. The route seemed to be a well-defined airway with three excellent check points. First, we had the *Philippine Sea*, our "airport" of departure. Some 300 miles south of it was the Coast Guard icebreaker *Northwind*, which furnished a second check point. And clustered in the ice-filled water a few hundred yards off Little America were the *Yancey*, the *Merrick*, and our flagship *Mount Olympus*, the latter loaded to the gunwales with radio and radar equipment. Other things being equal, it looked like a milk run.

And then all the trouble imaginable hit us at once. Command and liaison radios went dim. We later discovered that the outside antenna had fouled with the landing gear. We could get faint signals but they finally became so obscure they were useless. A broken relay switch knocked out one of the compass sets for radio direction finding; the other RDF went out because of a broken loop cable drive. We had no spare parts for the one, and the loop cable was buried in the deck of the plane where we couldn't reach it.

We put Stein, the photographer, to grinding on the "Gibson Girl" and resigned ourselves to working with a practically useless radio and without radio compasses.

We tried to get under the overcast, without luck. When we tried to climb above it, we found that carburetor ice or some other handicap cut airspeed to the danger point at 4,300 feet.

For another half hour or so we were too busy to be worried. Sergeant Mincey came forward and asked permission to hack a hole in the bottom of the plane to cut loose the trailing antenna in the undercarriage. He also wanted to try to repair one of the radios. We okayed this and a few minutes later he had radio parts spread out all over the cabin tanks and gangway.

Meanwhile we found that at 700 feet, despite windshield icing, we could get a glimpse of what was under us by peering down at a sharp angle. And we discovered with some relief that it wasn't carburetor ice which had kept us from climbing over the overcast. Instead, the hydraulic pump was broken and the ski-wheel landing gear was down. We went to work on that.

After half an hour we had accomplished nothing. Command radio could not be used to send out messages very far because the antenna could not be hoisted or

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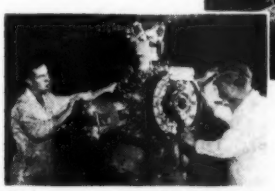

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lowered. Both radio direction finders were still out. We could get a faint signal from one set on the "loop" position. This aural null gave us a lead to fly. By staying on it, we would head either directly toward Little America—or directly away. We had no way of determining which, mainly because the signals were so faint.

Normal compass operation would have helped solve this difficulty but we were having the usual compass troubles encountered by pilots in the Antarctic or the Arctic. Navigational problems are accentuated when you cross meridians every five to 10 minutes, and fly with a magnetic pole at close quarters and a geographic South Pole 700 miles away. And in our case we could not count on our radio compasses. The electric gyro compass was available but even that was useless. To set the ship's heading on the electric gyro a sun shot is a "must"—and the weather had closed in.

This left us the magnetic compass and the fluxgate compass, neither of which agreed. It might be added that this was not necessarily a fault of either instrument. Their pointers dip near the magnetic pole. On the magnetic compass this slows the action. On the fluxgate, the bowl is so shallow that when the pointer dips it is likely to drag on the bowl bottom.

And then I got the worst scare of my life.

Captain Butters, who had been trying to work out navigation without benefit of radio, without the sun, and without drift sights, broke it to me as gently as possible.

"What's that street you live on in Philadelphia, Major?" he asked.

It was a standing joke on me—like the fact that before joining the Marines I taught grade school.

"Sharpnack Street," I answered.

"Well," he said, "the fluxgate compass shows we are heading straight for it—exactly the opposite direction from our destination."

"Oh," I said.

"I don't think we have enough gas to make it," Butters added wistfully.

We talked it over. We looked down. By now, if we had been heading in the right direction, we should have been over ice-filled water. Under us was the open sea. Could we have made a complete circle—were we 180° off course? Were we streaking far out to sea—would we finally cartwheel into the icy waves with our gear down, without a chance of survival, much less rescue?

I was scared. I sat for minute after endless minute, for what seemed like a couple of years. There seemed to be no answer, and no way to figure an answer. But I was sure-positive of one thing: Butters and Bromley knew their navigation. Compass or no compass, they couldn't possibly be 180° off.

I called for a vote on what we should do and the decision was unanimously what I had hoped—we'd go straight ahead.

It was like a death watch. Even the fact that we finally got the landing gear up didn't help. The weather cleared, improving the visibility, but that wasn't too much help either. We still saw open water. Minutes ticked off. The gas gauges began to dip lower.

And then, through a spot in the windshield which we had cleared with alcohol, we got our first major break. There was barrier ice ahead, stretching as far as the eye could see!

The rest was anticlimactic. We marked a spot on the ice which later turned out to be Discovery Inlet and decided to fly 100 miles to the left (east). If we failed to hit Little America, we would return to Discovery Inlet and fly 100 miles to the right (west). If we then found nothing we would land with enough gas to keep one engine going as long as possible, try to repair the radio and get out a message for rescue.

But almost before we made the decision and started to the east, we knew we were on the right course. Lieutenant Stein, the photographer, had become an expert at grinding a "Gibson Girl." Unable to get the antenna properly weighted, he had hit on an excellent idea—tied a Coca Cola bottle to the end of it. He ground away till he got blisters on his hands, but he also got results. The *Mount Olympus* picked us up.

We also began to get signals from Lieutenant Anderson who, with Lieutenant Sylvester J. Linn and their crew, had begged to fly out for us. Slowly their voices became clearer and clearer.

At the moment we sighted their plane we also sighted the ships in the harbor off Little America—and Little America itself.

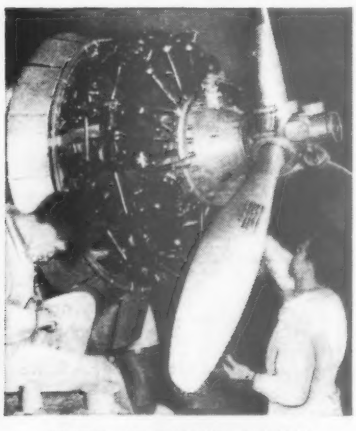
We set the skis down at 1:30, almost six hours (or 60 years, depending on how you figure it) to the minute after we left the *Philippine Sea*.

It was the long way around to get to Sharpnack Street, but it suited me perfectly and I heard no complaints from the rest of the crew.

I suppose there are a hundred things I learned from that flight, and I'm not sure which are the most important. I'd like to list two:

When taking a dangerous or uncharted flight like the one I made, always have a couple of pilots like Butters and Bromley along.

And *always* give the plane a super checking before takeoff. You should have seen the one I gave ours before flying it as escort to Admiral Byrd's in his jump over the South Pole! END



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Answers to Do You Know? on Page 84

1. *True.* This combination of forces is present in all normal attitudes of flight.
2. *True.* The airplane is adjusted to compensate for torque in cruising flight. When climbing, torque is greater and the airplane therefore tends to turn to the left. When gliding, torque is less and the airplane tends to turn to the right.
3. *False.* Just the opposite.
4. *True.* Moving the aileron control to the right lowers the left aileron. Wind striking the lowered aileron pushes the wing on that side and turns the plane to the right.
5. *False.* If the aileron control is moved to the left, the right aileron is lowered, lift is increased, and a strong gust may raise the wing and tip the plane over.
6. *False.* At temperatures below 15° F. the amount of moisture in the air is relatively slight, and serious icing is extremely unlikely.
7. *False.* Moist air at temperatures above 70° F. may produce serious icing because vaporization of fuel in the carburetor produces a cooling or refrigerating effect which may easily reduce the temperature of the air as much as 30°, and precipitate the moisture in the form of ice or frost.
8. *True.* To change the flight path from level flight to climbing flight, additional lift must be exerted momentarily, but once a steady climb is established, lift must equal weight, the same as in level flight.
9. *False.*
10. *False.* Any airplane can be maneuvered in the air without use of the rudder, and no very great skill would be required to maneuver and land entirely without rudder.
11. *False.* When power is reduced, the nose drops, and the elevator control is either held steady or moved slightly backward.
12. *False.* Unless there is a slight drop in rpm when switching from both magnetos to one magneto, something is wrong with the ignition system.

Runt Racers

(*Continued from page 32*)

sized planes. They needed a sponsor. The Goodyear Tire and Rubber Company took care of that by donating a $25,000 prize.

Then they drew up specifications for approval by the contest board of the National Aeronautics Association. Specifications were limited, intended to produce reasonably fast (about 190 m.p.h.) but comparatively safe ships which could be built in a fairly short time. President Chester of PRPA pointed out:

"With restrictions placed on engines and other features of the planes, designers had to resort to super-refinement in streamlining and efficient aerodynamic design to get out in front."

Restrictions kept cost at a minimum. Chester estimated that an engine and material to build the planes would cost no more than $1,000. He said, though, that he was spending "between $4,000 and $5,000" on each of his own three planes, because most of the work was being handled by outsiders.

Racing fraternity members are enthusiastic about the new race. Typical of the builders is a group of nine Lockheed Aircraft Corporation pilots and engineers who constructed what they call the smallest all-metal man-carrying airplane in the world—an 800-pound racing monoplane named the *Cosmic Wind*.

Lockheed's employees associated with the project were A. W. ("Tony") Le Vier, chief engineering test pilot and well-known racing flyer; Herman ("Fish") Salmon, engineering test pilot; Charles Tucker, P-80 production pilot; and Glen Fulkerson, flight test engineer. Other design engineers were Irving H. Culver, Julius A. Jaeger, P. W. McLane, David C. Hill, and Harold R. Bojens.

In all, five planes will be built by the group. Two will be entered in the National Air Races and flown by LeVier (second place winner in the Thompson Trophy race last year) and by Salmon. Cost of each of the planes is $5,000. *Cosmic Wind* has a wing span of only 19½ feet, is just 16 feet long and four feet high.

With this kind of plane, the National Air Races again should furnish nip-and-tuck competition, the PRPA believes. When smaller classes were dropped from programs in 1938 and 1939, the remaining two (the 550 cubic inch and the unlimited) were in the 300-m.p.h. category.

It thus became a poor financial investment to build a 300-m.p.h. plane because the one race a year didn't offer enough prize money. Last year superbly-engineered surplus military planes were used exclusively by the race pilots. To design personally, much less develop and build, a plane to compete with the Army models would be a tremendously expensive project—far beyond the means of most of the racing fraternity.

"Something radical had to be done," Chester said. "To save air racing either as a sport or a business, race planes of new classes and types had to be conceived and introduced."

The 190 cubic inch engine class was the answer.

And the National Air Races aren't intended as the only proving ground for these powerful midgets. Chester explains that the runts will give air racing a transfusion of spectator interest. The National Air Races are just the beginning.

Following is a list of the PRPA specifications for 190-cubic inch class racing planes, and the flight requirements for both planes and pilots:

ENGINES—Not to exceed 190-cubic inch piston displacement. They must carry an A.T.C., and not be altered structurally or otherwise except as approved by the manufacturer. They may be run at any speed desired. Engines are subject to inspection by the PRPA technical committee and if found altered in ways other than allowed above they will be disqualified. Fuel injection is optional.

PROPELLERS—Must be fixed pitch during flight. On the ground, adjustable type propeller is permitted. Any type of material may be used.

WING LOADING—Not to exceed 12 lbs. per square foot gross weight, including that area displaced by the fuselage but not including fillets and stall strips. Wing area is figured by the technical committee. Pilot weight of 120 lbs., chute 20 lbs., gasoline 90 lbs. (15 gal.), manufacturer's recommended oil capacity at 1.9 lbs. per quart to be used in all cases. Lift

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increasing flaps on wings are not allowed. Fuselage drag flaps are permitted.

MINIMUM WEIGHT—Ship must have minimum dry, empty weight of 500 lbs. plus or minus 1 per cent.

LANDING GEAR—Non-retractable type. Tricycle if desired. Brakes compulsory. Wheels must be 5.00x5 or larger. Point of contact of the wheels must be at least 15° forward of the center of gravity when ship is in flying position.

NOSE-OVER STRUCTURE—Substantial protection for pilot must be provided either fore or aft of pilot cockpit. Room for crash helmet must be provided in pilot enclosure.

VISION—At least 30° downward from pilot's eyes to top of wing and five degrees to top of cowl when in flying position.

FUEL TANKS—Must have minimum capacity of 15 gals. Any type of fuel may be used.

PARACHUTES—Parachutes, safety belts, shoulder straps and crash helmets are compulsory.

MATERIALS AND WORKMANSHIP—Must conform to aircraft standards or equivalent.

GENERAL DESIGN—Recommended that a three-view scale drawing and basic data be submitted to the Technical Committee of the PRPA for criticism and approval before construction of plane is started.

FLIGHT REQUIREMENTS:

1. Take-off at full throttle without veering more than 30 feet to either side of a straight line marked on the ground directly into the wind.

2. Pull up from straight and level flight (shallow starting dive permitted) to a minimum of six-G acceleration. Pull-ups to be done at 5,000 ft. altitude and at 175 m.p.h. or the maximum speed of the aircraft, whichever is lower.

3. Make dive at 1.3 maximum speed of ship in level flight.

4. Make at least three tight turns of at least 120° at 5,000 ft. at full speed, without appreciable loss of altitude.

5. Make three laps of an established race course at normal racing altitude, making the turns at full speed as in a race.

Each ship conforming to requirements, receives a numbered certificate of registration by the PRPA, which will remain in effect for the life of the ship or until changes or modifications, likely to affect the flight characteristics, are made. In such cases another demonstration will be required.

Pilots must have at least 500 solo hours unless they can show certified time of 10 hours in the ship they propose to race for every 100 hours short of the 500. In no case shall pilots have less than 200 solo hours, 10 of which must have been in the six months prior to the race.

Pilots also must have had at least two hours in the ship to be flown in the race or another ship of identical design, and have made at least five take-offs and five landings, prior to the qualification attempt but not earlier than 90 days before the race.

Pilots with no previous closed course racing experience must fly the ship to be used in the race at least eight consecutive laps of the prescribed course, at least two of which must be at a speed in excess of the required qualifying speed for that particular race.

The approved course for the length is roughly rectangular, two miles long. Two pylons are in full view of the grandstands and roughly half of the course is in sight of the spectators.

The new event is scheduled for four 20-mile heats on August 30, two 30-mile heats on the following day, and the 50-mile final on September 1.

Pilots must know and abide by the rules and regulations governing all closed course racing.

The association will recommend to the National Aeronautics Association the disqualification of any pilot who, through drunkenness, hangover, recklessness, or otherwise is deemed a hazard to other pilots. Such pilots will be suspended for a period of time or may be barred for all time from all meets sanctioned by the NAA or the PRPA. END

FLYING

"If you're gonna sing all the way to Albuquerque, you'd better unfasten your chin strap . . ."

Aerial Trappers

(*Continued from page 27*)

was over by a barn, masquerading as a tool shed. Lloyd showed up soon and made me pleasantly comfortable in his office.

But no *Cub*. I began to wonder if Lowell would be able to distinguish the port from the air. The afternoon faded out of the sky and finally, almost at dark, I heard the engine drone and saw the plane circling over to the west. ¶ dashed over to the car and flashed the spotlight on them. That worked nicely and they settled to the ground a few minutes later. Lloyd solved our camp-pitching problems by offering us his oil-heated office for the night. So, after dining in town, we spread air mattresses and sleeping bags on the office floor and slumbered comfortably.

A couple of days later my forced landing technique got a workout. It all started when I left Chadron, Neb., to meet the car in Lusk, Wyo. Canyon flying is bad, I'd been warned, but I had to find out the hard way. I was following a railroad up a wide valley with decent ceiling. Soon, however, I was in a not-too-wide canyon with a low ceiling. And finally, as the canyon rose, I found the ceiling right down on the floor.

I had never realized how much room it takes to turn a *Cub* around. Even in a steep bank it uses up a lot of canyon. I squeezed around with my wheels almost scraping the cliffs and began looking for a field. Finally, as the canyon widened, I spotted the Van Treek's wheat stubble field—a haven in a countryside of hills, cliffs, and brush-filled river bottom. After dragging the field once I settled down and climbed out onto solid ground. It was only a short job to tie down the *Cub* with the lightweight aluminum stakes we always carried. A half-mile hike brought me to the ranch house where I was given a hearty welcome by the Van Treeks. Luckily they had a telephone. By prearrangement we had agreed to contact each other through our intended destination in case of emergency, and soon Lowell was talking to me from Wyoming. There was pea soup fog there and they were wondering where I had ended up.

In a few hours the sky cleared and I proceeded. But Wyoming didn't fulfill our expectations. The Teton Mountains looked inviting but the Shoshone Indians were the only trappers allowed in the best sections so we pushed on to try Nevada or California.

In Nevada I found myself forced to navigate without a chart. No commercial fields were encountered between Salt Lake City and Ely, Nev.—a day's trip—and my chart expired at Wendover, Ut., leaving me a two-hour hop to Ely with only a Utah highway map showing three or four roads and four or five towns in Nevada. But that looked simple. All I had to do was follow the highway for a couple of hours until I reached a fair-sized town, which I figured should be Ely. So I proceeded to the southwest.

Two hours brought me in sight of a city. It could only be Ely, according to my road map. Over to the right a small creek meandered up next to the hills and I headed that way to look for an overnight camping spot. The day was too far gone for another long hop. So I cruised around, chose a good camp site, and finally headed for the airport.

What, no airport? And only a half hour's gas left in the tank. The map proved useless—it showed no town but Ely for miles around. Either the airfield had moved or this wasn't Ely. I circled vainly and finally picked out a long hay meadow in case I should have to come down. I saw a road sign just out of town and buzzed down to read: "Eat at McSween's Cafe."

With a little gas left I headed south to look around an out-jutting mountain. The airfield stared me in the face! It turned out I'd been circling the mining town of McGill, which was not shown on the map. Ely had been six miles further south, out of sight behind the mountain.

The next day's trip brought us to western Nevada. The Sierras, rising abruptly on the California line, held beautiful Lake Tahoe high above Carson City. This seemed like the end of our search: miles of creeks and rivers, rugged, scenic country, and few other trappers. Smith Valley, a few miles south, had a small airport and was in the heart of the best country. Lowell and I took off from Carson City to prospect the country by air and also

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The airfield was in a flat valley, surrounded by high hills, with snow-capped Sierra peaks standing close behind. The Walker River tumbled down from a canyon and meandered for miles through the flat, making a network of swamps, small branch creeks, brush, and wild country. Following up the canyon we came to Antelope Valley, higher still, with more miles of river bottom. The canyon between was beautiful. Steep walls rose from the river, with only a few spots wide enough for camping. We picked a camp site from the air and it turned out to be ideal. We lived there for the next six weeks.

Soon Mary arrived with the weary Ford and we bumped our way up a two-track canyon trail to our air-chosen camp.

Fur animals seemed plentiful and we turned all our attention to preparing for the opening of the season. Odd hours were spent improving our 10x12-foot wall tent, which was soon decked out with a stove, underground cooler, drain pipe, cupboards, table and other conveniences.

The airplane was valuable in this strange territory. We flew low and counted muskrat houses, making crude maps of the best areas. We also jotted down short cut trails and saved miles of walking and driving.

Lowell and I found out about downdrafts the hard way. So far our mountain flying had been uneventful and we grew careless. Yosemite National Park, a few miles from camp, lured us up over the ruggedest section of the Sierras to take some pictures. Thirteen thousand feet *seemed* enough altitude since only occasional peaks reached 12,000 feet. We circled a few times, snapping pictures. With our gas half gone, we headed back. But a vicious down draft sucked us in. With the *Cub* in full climb the altimeter dropped at an alarming rate. Not a forced landing place for miles—only jagged peaks and tiny, cliff-sided lakes! We'd never be able to land and walk out of there. It was fly out or nothing. With the altimeter down to 11,000 feet we found 12,000 foot peaks frowning down on us and we were still dropping. If only there was a canyon to sneak out of! Peak-dodging, we finally scraped over the rim and landed at the nearest airport, Bridgeport, Calif. We felt lucky.

Trapping season came and the next three weeks were spent in all-day, hip-booted hikes with pack sacks full of steel traps and furs. Mary loved trapping and spent most of her time in the swamps and streams with us. The three weeks flew by and Christmas neared.

One day, with the three of us humming "I'll Be Home for Christmas," we finished pulling our traps, broke camp, and headed east with our catch. I had friends in Denver and started on alone with the airplane, intending to beat the car there and have a day or so to visit. I carried two five-gallon cans of gasoline strapped in the rear seat so I could refuel myself in this lonely country.

All went well until I came within two hours of Denver. The final hop from Craig, Colo., to Denver crosses the Continental Divide at 12,000 feet. But a 10,-

000-foot ceiling forced me to turn north and cross the divide in Wyoming, where it lowered to 7,000 feet. So I planned to refuel in Rawlins, Wyo., and be in Denver the same morning. From Craig you fly north up a valley until you hit the Union Pacific tracks a few miles west of Rawlins and follow them into town. I proceeded north and came in sight of the railroad.

Here I had a warning of what was ahead of me: A train raced east down the track toward Rawlins. But train smoke told the story—it blew straight ahead of the train, indicating a west wind of at least 40 or 50 miles an hour. With a little more experience I'd have turned back into the shelter of the valley and landed rather than attempt to come down in such a gale. But I kept on and sped with the wind into Rawlins. Gusts buffeted me about and it seemed impossible to keep the craft upright. I was too busy to be scared. The airport showed up and I saw only one way to get the plane down. I headed into the wind at the end of the runway, pushed the stick ahead, and dove on the field. The airspeed read 100 m.p.h. when I got near the ground, and the *Cub* was knocked all over the field. I finally got the wheels on the ground and held them there, taxiing at full throttle up the runway. Of course I couldn't turn the nose. Full throttle and rudder wouldn't budge it an inch from the wind. Two waiting ground-crew men grabbed the wings and we finally got the *Cub* in the lee of a hangar.

Nearby Sinclair weather station was reporting: wind, west; 45 m.p.h. with strong gusts. For three days and nights the gale continued. On the fourth day the wind dropped to 25 m.p.h. and I took off and landed in Denver 2½ hours later. Mary, Lowell and the Ford had arrived three days ahead of me.

After a day of renewing old friendships and another spent skiing in the Rockies, we headed eastward once more. Three days of tail-wind flying landed us safely at our home port, Knapp Field, a week before Christmas.

Our total catch of furs was 200 muskrats, 19 mink, eight raccoon, three coyotes, and two lynx. We sold these in Michigan for $675, which came within a shade of paying the $700 of trip expenses. We all three figure the slight balance well invested in happy memories, flying experience, and lynx rugs around the fireplace. Around that same fireplace we're planning better trips, on floats, to Canadian lakes inaccessible by auto or railroad. END

Letters

(*Continued from page 6*)

thing should be done about the situation.

JOSEPH B. RYAN, JR.

Deerfield, Mass.

. . . I flew up to Canada recently in my Stinson 150. Nearing Detroit I found that Detroit City Airport is the only port of entry, although several other airports are so marked on the chart. The U. S. Customs officer there told us we should have given him an hour's notice and that he was there only because two Canadian aircraft had just landed. Finally, he gave us a manifest to go into Canada and cautioned us about giving him an hour's notice on our return. He also pointed out that if we came at any time other than between 8 a.m. and 5 p.m. it would cost us as high as $20 or $30.

When I arrived in Toronto the customs official was very courteous and helpful and Traffic Control there took a lot of time calling various stations to find out the landing place nearest to Picton, our destination.

On the return trip, we cleared customs at Toronto and Traffic Control cleared us to Detroit. Remembering the warning we had received, we wired Customs at Detroit giving our ETA as 9:30 a.m. But we had a tail wind and arrived at 9:15 and were severely censured for arriving ahead of time. The customs officers said we were lucky they didn't fine us $150 to $200 and that if we had been Canadians that's what they would have done. We asked if we should circle the airport for 15 minutes and he answered, "Either do that or stay in Canada till you are due here." After throwing his rank around, he finally became human and let us stay there.

We won't do much flying in Canada if we have to suffer such indignities and bother from U.S. Customs.

P. R. STANLEY

● FLYING has received a number of complaints about difficulties private flyers encounter in crossing the border. An article on the subject will appear in a forthcoming issue.—ED.

OLDEST WOMAN PILOT?

I was very much interested in the item entitled Age Groups in "Report from Washington" (June issue). It stated there were practically no persons flying at 55.

My husband and I are private pilots, ages 56 plus and 58. I have tried to find out if I am the oldest woman pilot holding a private license. We have our own plane and have flown on several long trips.

How many are there in the 55 to 60 age group, especially women, who are really flying?

MRS. FLORENCE R. MYERS

Prospect Park, Pa.

● A Civil Aeronautics Administration booklet entitled "Age Study of the Flying Public" reveals that in the 55-60 age group there are 26 men and two women.—ED.

INSTRUCTOR'S REBUTTAL

I've been reading your magazine for some time and have never seen anything quite so stupid as R. A. Barnes's letter entitled "No Sympathy for Instructors" (June issue).

What's wrong with the guy anyway? I can visualize a couple of ex-GI instructors like myself reading that letter and wondering the same thing. Has he ever sat in the back seat of an AT-6 or other types of trainers and beat his brains out, hour after hour, saying the same thing over and over to one cadet after another? I wonder.

As for the instructor not leaving the

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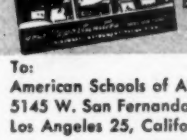

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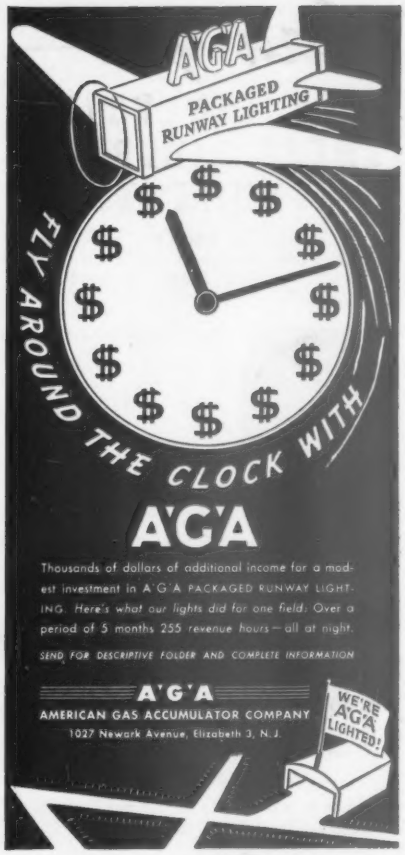
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Benjamin N. Bogue, Dept 5282, Circle Tower, Indianapolis 4, Ind.

"good old U.S.A.," he's all wrong there. They went just like the cadets. Some of my best friends went over—and some of them stayed permanently.

As for the cadets not receiving the same amount of pay as instructors—why didn't the GI's in the infantry or artillery receive the same pay as their superiors?

This letter is in defense of the Army, Navy and Marine flight instructors and I think they'll all agree with me that instructors lead a pretty rough life.

ERNEST D. MATTSCHEI

Visalia, Calif.

WANTS "HAVE YOU SEEN?" ISSUE

The first section I look at with the most interest in FLYING is "Have You Seen?" I was thinking that you might put out a special number devoted exclusively to this feature, using the back issues. Most of the planes that appear under this head are never seen again and I think it would be a good collector's item to have as many as possible in one binding.

LEONARD E. OPDYCKE

Exeter, N. H.

CATERPILLAR CLUB

In 1945, members of the Caterpillar Club voted to have an independent member-operated club and organize chapters throughout the country. The chapter organization work has just begun. We know there are hundreds who perhaps are eligible for membership but lack knowledge of the Caterpillar Club.

Those who bailed out in an emergency are eligible. They may apply for an application blank to: Caterpillar Club, Broad Street Bank Bldg., Trenton, N. J.

LEO A. SMITH
Acting Secretary

Trenton, N. J.

LICENSE FEVER IN NEW HAMPSHIRE

Having read J. B. Hartranft's article "License Fever" (January issue) and his reply to the New Hampshire Aeronautics Commission ("Letters" column, July issue), I'd like to put in my two-bit's worth.

I learned to fly in New Hampshire and paid an exhoritant fee to get a student's license. Now when I go back to New Hampshire I'll have to pay another $5 to get a private license.

I'd like to know where all this money goes. Is it used to improve aviation in New Hampshire? Since joining the Navy I have flown in Illinois, Wisconsin and California. None of these states requires a state license [Illinois now does. Ed.] but the progress of aviation is just as fast, if not faster, than in New Hampshire.

OWEN H. LIBBY

Alstead, N. H.

WRONG INITIAL FOR LANDING CRAFT

On page 19 of your June issue the landing craft is erroneously captioned an LCI. It is an LCT (Landing Craft Tank: MK 6).

S. A. JACOBSON
Ens. USNR, Inactive

Spofford, N. H.

● Our error.—ED.

SILENT PROPELLER

Referring to your article "Soundproofing the Prop" (May issue), some years ago a patent was issued on a silent propeller which had a slot through both blades centrally located and extending a short distance to the tip. The object was to neutralize the vacuum effect at high tip speed which causes the blade to vibrate and produce the noise.

This approach seems to be a practical solution to the problem and I wonder why it has never been adopted.

R. J. TIQUENTHAL

Milwaukee, Wis.

● Never heard of the project before. Has any FLYING reader?—ED.

WANTS AN AVIATION JOB

I want to secure employment that will not only add to my experience but will enable me to keep my license. I have an A&E Mechanic Certificate and have been employed at Lockbourne Army Base as a civilian engine mechanic.

Can you supply me with leads on places that might hire a man with an A&E, regardless of color? Some of the schools I have attended are Roosevelt Aviation School, Tuskegee Institute School for Mechanics and, during the war, Curtiss-Wright.

EDWARD H. LEEPER

Columbus, O.

● FLYING will be glad to forward replies to Mr. Leeper.

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